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**Adler, Andrew** (*with* Hamilton, James) Invariant means via the ultrapower. **48** #2664
**Berg, Christian** (*with* Christensen, Jens Peter Reus) On the relation between amenability of locally compact groups and the norms of convolution operators. **49** #5713
**Boissier, M.** Sur des conditions de moyennabilité d'un groupe. **50** #14058
**Bombal Gordón, Fernando** (*with* Vera, G.) Means in locally convex spaces and semireflexivity. (Spanish) **52** #14841 (E **54** #11018)
(*with* Vera Botí, G.) Almost convergent vector-valued functions. (Spanish) **54** #5742
**Chou, Ching** (*with* Duran, J. Peter) Multipliers for the space of almost-convergent functions on a semigroup. **47** #3905
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**Christensen, Jens Peter Reus** *See* **Berg, Christian**, **49** #5713
**Clausing, A.** Representations of semigroups and extension of invariant linear functionals. **57** #10356
**Day, Mahlon M.** Lumpy subsets in left-amenable locally compact semigroups. **53** #14008
**Derighetti, Antoine** Sur la propriété $P_1$. (English summary) **55** #3680
**Dunkl, Charles F.** (*with* Ramirez, Donald E.) Existence and nonuniqueness of invariant means on $\mathcal{L}^{\infty}(\hat{G})$. **45** #5668
**Duran, J. Peter** *See* **Chou, Ching**, **47** #3905
**Emerson, William R.** Averaging strongly subadditive set functions in unimodular amenable groups. I. **58** #6919a
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**Eymard, Pierre** ★Moyennes invariantes et représentations unitaires. **56** #6279
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**Fairchild, Lonnie** Extreme invariant means without minimal support. **46** #7799
**Faraut, Jacques** Moyennabilité et normes d'opérateurs de convolution. **52** #14844
**Gerl, Peter** Gleichverteilung auf lokalkompakten Gruppen. **53** #6231
**Gramain, François** Formes linéaire invariantes par translation et approximation rationnelle. **53** #14010
**Granirer, Edmond E.** Criteria for compactness and for discreteness of locally compact amenable groups. **49** #5712
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Properties of the set of topologically invariant means on P. Eymard's $W^*$-algebra VN($G$). **50** #10682
**Grossman, Marvin W.** Uniqueness of invariant means on certain introverted spaces. **48** #4639
Invariant means and fixed point properties on completely regular spaces. **56** #3570
**Hamilton, James** *See* **Adler, Andrew**, **48** #2664
**Husain, Taqdir** (*with* Wong, James C. S.) Invariant means on vector valued functions. I, II. **53** #14011
Amenability of locally compact groups and vector-valued function spaces. **53** #14012
**Junghenn, Hugo D.** Some general results on fixed points and invariant means. **52** #6320
**Klawe, Maria** Semidirect product of semigroups in relation to amenability, cancellation properties, and strong Følner conditions. **57** #10357
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**Lau, Anthony To Ming** Invariant means on almost periodic functions and fixed point properties. **48** #2665
Invariant means on subsemigroups of locally compact groups. **48** #4640
Amenability and invariant subspaces. **57** #17120
Invariant means on almost periodic functions and equicontinuous actions. **51** #3793
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**Liu, Teng Sun** (*with* van Rooij, Arnoud) Invariant means on a locally compact group. **50** #10683
**Luschgy, Harald** Invariant extensions of positive operators for right amenable semigroups. **58** #29829
**Ma, Tsoy Wo** Mean spaces of topological groups. **54** #10977
**(Meisters, Gary H.)** *See* **Gramain, François**, **53** #14010
**Nillsen, Rodney** Nets of extreme Banach limits. **53** #11303
**Paterson, Alan L. T.** The size of the set of left invariant means on an ELA semigroup. **58** #12187
**Pier, Jean-Paul** Operators and functionals on Banach spaces that are topologically invariant under the action of a $\sigma$-compact unimodular amenable group. (Romanian summary) **56** #16251
**Rajagopalan, M.** (*with* Ramakrishnan, P. V.) On a conjecture of Granirer and strong Fölner condition. **50** #14059
**Ramakrishnan, P. V.** *See* **Rajagopalan, M.**, **50** #14059
**Ramirez, Donald E.** *See* **Dunkl, Charles F.**, **45** #5668
**Renaud, Peter** Equivalent types of invariant means on locally compact groups. **46** #4104
**Riemersma, Martinus** ★$\pi$-morphisms and invariant means on semitopological semigroups. (Dutch summary) **51** #3794
Amenability of homogeneous spaces. **48** #4641
**van Rooij, Arnoud** *See* **Liu, Teng Sun**, **50** #10683
**Rosenblatt, Joseph Max** Invariant measures and growth conditions. **49** #7699
The number of extensions of an invariant mean. **55** #8687
Invariant means and invariant ideals in $L_{\infty}(G)$ for a locally compact group $G$. **53** #1163
Invariant means for the bounded measurable functions on a non-discrete locally compact group. **53** #1164
Invariant means on the continuous bounded functions. **57** #13377
**Rudin, Walter** Invariant means on $L^{\infty}$. **46** #4105
**Sakai, Kôkichi** Amenable tranformation groups. II. **51** #11009
Amenable transformation groups. **51** #11008
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On amenable transformation semigroups. I. **55** #6111
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On linear representations of amenable groups. **55** #6114
**Schikhof, W. H.** Non-archimedean invariant means. **53** #1165
**(Schmidt, Wolfgang M.)** *See* **Gramain, François**, **53** #14010
**Sine, Robert** Sequential convergence to invariance in $BC(G)$. **54** #854
**Snell, Roy C.** The range of invariant means on locally compact abelian groups. **53** #1166
**Talagrand, Michel** Moyennes de Banach extrémales. (English summary) **54** #8146
**Vera, G.** *See* **Bombal Gordón, Fernando**, **52** #14841 (E **54** #11018)
**Vera Botí, G.** *See* **Bombal Gordón, Fernando**, **54** #5742
**Wong, James C. S.** An ergodic property of locally compact amenable semigroups. **52** #14845
Amenability and substantial semigroups. **55** #978
A characterization of topological left thick subsets in locally compact left amenable semigroups. **53** #14009
*See also* **Husain, Taqdir**, **53** #14011

Secondary classifications:

**Adler, Andrew** On continuity of invariant measures. (**48** #6367)
**Chivukula, Ramamohana Rao** *See* **Woodward, W. Randolph**, (**47** #889)
**Chou, Ching** The multipliers of the space of almost convergent sequences. (**47** #3914)
Weakly almost periodic functions and almost convergent functions on a group. (**52** #14868)
**Derriennic, Yves** (*with* Guivarc'h, Yves) Théorème de renouvellement pour les groupes non moyennables. (**48** #7332)
**Emerson, William R.** Large symmetric sets in amenable groups and the individual ergodic theorem. (**50** #7402)
**Eymard, Pierre** Invariant means and unitary representations. (**48** #11389)
**Granirer, Edmond E.** ★Exposed points of convex sets and weak sequential convergence. (**51** #1343)
**Grossman, Marvin W.** A categorical approach to invariant means and fixed point properties. (**46** #9955)
**Guivarc'h, Yves** *See* **Derriennic, Yves**, (**48** #7332)
**Kharaghani, H.** Left thick subsets of a topological semigroup. (**57** #3300)
**Kurepa, Svetozar** Uniformly bounded cosine function in a Banach space. (**47** #9352)
**Lau, Anthony To Ming** Action of topological semigroups, invariant means, and fixed points. (**47** #900)
**Milnes, Paul** Compactifications of semitopological semigroups. (**50** #528)
Left mean-ergodicity, fixed points, and invariant means. (**58** #12509)
**Price, John F.** Means of vector valued functions and projections which commute with the action of a group. (**50** #14367)
**Pyt'ev, Ju. P.** Receptive fields and invariant integration. (Russian) (**46** #8490)
An algorithm for the preliminary processing of signals in recognizing systems that generalize according to similarity. (Russian. English summary insert) (**46** #8492)
**Renaud, Peter** Invariant means on a class of von Neumann algebras. (**46** #3688)
**Riemersma, Martinus** On a theorem of Glicksberg and fixed point properties of semigroups. (**45** #9159)
**Sakai, Kôkichi** Extremely amenable transformation semigroups. II. (**51** #768)
**Snell, Roy C.** The range of invariant means on locally compact groups and semigroups. (**47** #2035)
**Ts'êng, Chün Hung** (*with* Ts'êng, Chün Shan) Tolerance spaces and almost periodic functions. (**58** #23355)
**Ts'êng, Chün Shan** *See* **Ts'êng, Chün Hung**, (**58** #23355)
**Woodward, Gordon S.** Invariant means and ergodic sets in Fourier analysis. (**51** #11021)
**Woodward, W. Randolph** (*with* Chivukula, Ramamohana Rao) Invariant linear functionals. (**47** #889)

**Yeadon, F. J.** Fixed points and amenability: a counterexample. (**50** #2936)

**Zimmer, Robert J.** Hyperfinite factors and amenable ergodic actions. (**57** #10438)

## 43A10 Measure algebras on groups and semigroups

**Akst, George** $L^1$-algebras on semigroups. **51** #13584
Measure algebras infinite dimensional spaces. **54** #10978

**Bailey, W. J.** (*with* Brown, Gavin; Moran, William) Spectra of independent power measures. **45** #5667

**Baker, Anne C.** (*with* Baker, J. W.) Algebras of measures on a locally compact semigroup. III. **46** #5928

**Baker, J. W.** Convolution algebras with discrete spectra. **47** #714
A characterisation of a certain class of convolution algebras. **47** #9170
Invariant convolution algebras. **49** #5714
Duality of semigroups and measure algebras. **55** #6115
*See also* **Baker, Anne C., 46** #5928

**Brown, Gavin** (*with* Moran, William) $L$-ideals of $M(G)$ determined by continuity of translation. **48** #4642
(*with* Moran, William) $L^{1/2}(G)$ is the kernel of the asymmetric maximal ideals of $M(G)$. **49** #3450
(*with* Moran, William) A dichotomy of infinite convolutions of discrete measures. **47** #715
$M_0(G)$ has a symmetric maximal ideal off the Šilov boundary. **48** #2666
(*with* Moran, William) Bernoulli measure algebras. **54** #5743
(*with* Moran, William) $M_O(G)$-boundaries are $M(G)$-boundaries. **50** #14060
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(*with* Moran, William) Point derivations on $M(G)$. **54** #5744
(*with* Moran, William) Gleason parts of measure algebras. **52** #14846
(*with* Hewitt, Edwin) Continuous singular measures equivalent to their convolution squares. **54** #3291
(*with* Graham, Colin C.; Moran, William) Translation and symmetry in $M(G)$. **58** #6920
(*with* Moran, William) Corrigendum and addendum to the paper: "In general, Bernoulli convolutions have independent powers" (Studia Math. **47** (1973), 141–152). **56** #978
*See also* **Bailey, W. J.; et al., 45** #5667

**Burnham, James T.** Nonfactorization in subsets of the measure algebra. **45** #7394

**Chover, Joshua** (*with* Ney, Peter E.; Wainger, Stephen) Functions of probability measures. **50** #891

**Chow, Hing Lun** Limit measures on compact semitopological semigroups. **50** #892
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**Choy, Stephen T. L.** On central primitive idempotent measures. **48** #4643 (E **58** #2016)
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**Connolly, Dennis** (*with* Williamson, J. H.) An application of a theorem of Singer. **53** #6234a
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**Corwin, Lawrence** Unitary measures on LCA groups. **50** #10684

**Dietrich, William E., Jr.** Ideals in convolution algebras on Abelian groups. **50** #10685

**Doss, Raouf** Convolution of singular measures. **48** #6816

**Duchoň, Miloslav** Structure theory for a class of convolution algebras of vector-valued measures. **50** #7951

**Dunkl, Charles F.** (*with* Ramirez, Donald E.) Locally compact subgroups of the spectrum of the measure algebra. I, II. **46** #608
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(*with* Ramirez, Donald E.) Weakly almost periodic functionals on the Fourier algebra. **51** #8738 (E **51** #8739)
(*with* Ramirez, Donald E.) Erratum to: "Weakly almost periodic functionals on the Fourier algebra" (Trans. Amer. Math. Soc. **185** (1973), 501–514). **51** #8739
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**Dzinotyiweyi, Heneri A. M.** On the analogue of the group algebra for locally compact semigroups. **58** #12188
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**Edwards, C. M.** The measure algebra of a central group extension. **46** #609

**Feichtinger, Hans G.** (*with* Rindler, Harald) Symmetrie der Wienerschen Algebra und Gruppenstruktur. **58** #6921

**Fisher, Michael J.** The embeddability of an invertible measure. **52** #6321

**Fountain, John** (*with* Ramsay, R. W.; Williamson, J. H.) Functions of measures on compact groups. **57** #7034

**Graham, Colin C.** Interpolation sets for convolution measure algebras. **47** #7324
Maximal ideals and discontinuous characters. **50** #5359
Measures vanishing off the symmetric maximal ideals of $M(G)$. **49** #9539
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**Hazod, Wilfried** Über Faltungshalbgruppen von Wahrscheinlichkeitsmassen. **49** #1002
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**Hewitt, Edwin** Some Fourier-Stieltjes transforms of absolute value one. **50** #7950
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**Host, Bernard** (*with* Parreau, François) Sur la fermeture de $\mu \star L^1(G)$. (English summary) **56** #979

**Inoue, Jyunji** Some closed subalgebras of measure algebras and a generalization of P. J. Cohen's theorem. II. **49** #3451
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**Izuchi, Keiji** On a zero set of Gelfand transforms of $L$-ideals of measure algebras. **46** #9641
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**Jones, Charles A.** (*with* Lahr, Charles Dwight) Weak and norm approximate identities are different. **56** #6282

**Khalil, Idriss** Quelques résultats d'analyse harmonique concernant les algèbres $A_p$ et $B_p$. **46** #610

**Kirillov, A. A.** (*with* Sunčeleev, R. R.) Algebra of measures on the group of affine transformations of the $p$-adic interval. (Russian. Uzbek summary) **52** #3881

**Lahr, Charles Dwight** Multipliers for certain convolution measure algebras. **48** #11912
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**Lasser, Rupert** Zur Idealtheorie in Gruppenalgebren von $[\mathrm{FIA}]_B^-$-Gruppen. (English summary) **58** #29832

**Lawson, Jimmie D.** (*with* Liukkonen, John R.; Mislove, Michael W.) Measure algebras of semilattices with finite breadth. **58** #12191

**Letac, Gérard** Groupe de Stam d'une probabilité. (English summary) **46** #5930

**Lin, Chung** (*with* Saekī, Sadahiro) Bernoulli convolutions in LCA groups. **54** #13462

**Liukkonen, John R.** *See* **Lawson, Jimmie D.; et al., 58** #12191

**Ludvik, Peter** On a singular measure of D. M. Connolly and J. H. Williamson "An application of a theorem of Singer" (Proc. Edinburgh Math. Soc. (2) **19** (1974/75), no. 2, 119–123). **53** #6234b

**Martin, John C.** Limits of successive convolutions. **54** #855

**Mislove, Michael W.** *See* **Lawson, Jimmie D.; et al., 58** #12191

**Moran, William** Examples of the individual functional calculus for measures. **52** #8789
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**Mosak, Richard D.** (*with* Moskowitz, Martin) Central idempotents in measure algebras. **45** #9062
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**Moskowitz, Martin** *See* **Mosak, Richard D., 45** #9062

**Newman, Stephen E.** Measure algebras and functions of bounded variation on idempotent semigroups. **46** #7800

**Ney, Peter E.** *See* **Chover, Joshua; et al., 50** #891

**Otaki, Hiroshi** A relation between the F. and M. Riesz theorem and the structure of LCA groups. **56** #16252

**Parreau, François** *See* **Host, Bernard, 56** #979

**Pigno, Louis** A note on translates of bounded measures. **48** #11913

**Poguntke, Detlev** Nilpotente Liesche Gruppen haben symmetrische Gruppenalgebren. **56** #6283

**van der Put, Marius** Difference equations over $p$-adic fields. **48** #11914

**Pym, John** Convolution measure algebras are not usually Arens-regular. **51** #1276
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(*with* Vasudeva, H. L.) The algebra of finitely additive measures on a partially ordered semigroup. **55** #8688

**Ragozin, David L.** Central measures on compact simple Lie groups. **49** #5715
Rotation invariant measure algebras on Euclidean space. **49** #3452

**Ramirez, Donald E.** *See* **Dunkl, Charles F., 46** #608; **Dunkl, Charles F., 48** #2667; **Dunkl, Charles F., 48** #4644; **Dunkl, Charles F., 51** #8738 (E **51** #8739) ; **Dunkl, Charles F., 51** #8739 *and* **Dunkl, Charles F., 52** #1167

**Ramsay, R. W.** *See* **Fountain, John; et al., 57** #7034

**Renaud, Peter** Centralizers of Fourier algebra of an amenable group. **45** #2099

**Rider, Daniel** Central idempotent measures. **54** #5745

**Rindler, Harald** *See* **Feichtinger, Hans G., 58** #6921

**Rogozin, B. A.** Banach algebras of measures on the line that are connected with the asymptotic behavior of measures at infinity. (Russian) **55** #3681

**Ross, Kenneth A.** Hypergroups and centers of measure algebras. **58** #23344
Centers of hypergroups. **58** #12192

**Saekī, Sadahiro** Certain elements in quotients of measure algebras. **49** #3453
Symmetric maximal ideals in $M(G)$. **51** #6287
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Asymmetric maximal ideals in $M(G)$. **54** #3292
*See also* **Lin, Chung, 54** #13462

**Saka, Kōichi** A note on subalgebras of a measure algebra vanishing on non-symmetric homomorphisms. **50** #10686
On a characterization of some $L$-subalgebras in measure algebras. **53** #1167
Measure algebras on some topological groups. **51** #1277

The $L$-structure of measure algebras. (Japanese) **58** #6922
**Shimizu, Chikahiro** *See* **Izuchi, Keiji**, **58** #2017
**Shimizu, Tetsuhiro** A remark on multiplicative linear functionals on measure algebras. **48** #4645
 $L$-ideals of measure algebras. **47** #7326
 Independent sets and measure algebras. **55** #6116
 *See also* **Izuchi, Keiji**, **52** #6322
**Sleijpen, Gérard L. G.** Sur les translations continues des mesures bornées sur un semi-groupe localement compact. **49** #5716
**Spector, René** Aperçu de la théorie des hypergroupes. **56** #6284
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**Sunčeleev, R. R.** *See* **Kirillov, A. A.**, **52** #3881
**Talagrand, Michel** Solution d'un problème de R. Haydon. **52** #14848
**Taylor, Joseph L.** The cohomology of the spectrum of a measure algebra. **53** #14013
 Inverses, logarithms, and idempotents in $M(G)$. **45** #5669
 ★Measure algebras. **55** #979
 On the spectrum of a measure. **50** #10687
**Turner, Peter R.** Convolution of linear functionals of general spaces of functions. **49** #11140
**Vasudeva, H. L.** *See* **Pym, John**, **55** #8688
**Vasudeva, Harkrishan** *See* **Pym, John**, **52** #14847
**Wainger, Stephen** *See* **Chover, Joshua; et al.**, **50** #891
**Williamson, J. H.** *See* **Connolly, Dennis**, **51** #13585; **Connolly, Dennis**, **53** #6234a; **Fountain, John; et al.**, **57** #7034 *and* **Ludvik, Peter**, **53** #6234b
**Wong, James C. S.** Absolutely continuous measures on locally compact semigroups. **52** #1168
 Abstract harmonic analysis of generalised functions on locally compact semigroups with applications to invariant means. **55** #10965
**Wood, Geoffrey V.** Isomorphisms of $L^p$ group algebras. **45** #3640
**Ylinen, Kari** The multiplier algebra of a convolution measure algebra. **51** #1278
 Tensor products of certain Banach modules over commutative convolution measure algebras. **52** #8791
**Young, N. J.** Semigroup algebras having regular multiplication. **48** #9260
**Yuan, John** On the convolution algebras of $H$-invariant measures. **53** #11304
**Zafran, Misha** Measures as convolution operators on Hardy and Lipschitz spaces. **51** #8740
**Zappa, Anna** The center of the convolution algebra $C_u(G)$. **52** #11471
 The center of the convolution algebra $C_u(G)^*$. **53** #14014

Secondary classifications:

**Brown, Gavin** (*with* Moran, William) Coin tossing and powers of singular measures. (**50** #11363)
**Burrell, Q. L.** (*with* McCrudden, M.) Infinitely divisible distributions on connected nilpotent Lie groups. I, II. (**51** #11614)
**Chow, Hing Lun** Elements of finite order in semigroups. (**53** #8317)
 Remarks on maximal left ideals in semigroups. (**54** #451)
**Connolly, Dennis** (*with* Williamson, J. H.) Difference-covers that are not $k$-sum-covers. II. (**53** #330)
**Duchoň, Miloslav** A convolution algebra of vector-valued measures on a compact Abelian semigroup. (**46** #9286)
**Fairchild, William W.** Convolution on locally compact spaces. (**50** #2894)
**Gardner, L. Terrell** Uniformly closed Fourier algebras. (**47** #8762 (EA **58**) (E **52** #8328) )
 Note: "Uniformly closed Fourier algebras" (Acta Sci. Math. (Szeged) **33** (1972), 211–216). (**52** #8328)
**Hazod, Wilfried** Über Wurzeln und Logarithmen beschränkter Masse. (**47** #7776)
**Hutson, V.** (*with* Pym, John) Measure algebras associated with a second order differential operator. (**50** #10903)
**Inoue, Jyunji** On homomorphisms of a group algebra into a convolution measure algebra. (**58** #17685)
**Kaufman, Robert P.** Kronecker sets and metric properties of $M_0$-sets. (**46** #9638)
**Lahr, Charles Dwight** Approximate identities for convolution measure algebras. (**48** #4739)
**Leptin, Horst** Lokal kompakte Gruppen mit symmetrischen Algebren. (**58** #6058)
**McCrudden, M.** *See* **Burrell, Q. L.**, (**51** #11614)
**McGehee, O. Carruth** The idempotent principle in Fourier analysis. (**58** #12204)
**McKilligan, Sheila A.** (*with* White, A. J.) Representations of $L$-algebras. (**47** #2368)
**Moran, William** *See* **Brown, Gavin**, (**50** #11363)
**Ostrovskiĭ, I. V.** A description of the class $I_o$ in a special semigroup of probability measures. (Russian) (**47** #9680)
**Pym, John** (*with* Vasudeva, Harkrishan) Right ideals in $\beta S$ and its measure algebra. (**55** #8243)
 *See also* **Hutson, V.**, (**50** #10903)
**Ragozin, David L.** Zonal measure algebras on isotropy irreducible homogeneous spaces. (**51** #1297)
**Ricci, Fulvio** Local properties of the central Wiener algebra on the regular set of a compact Lie group. (French summary) (**58** #2028)
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**Kluvánek, Igor** A compactness property of Fourier-Stieltjes transforms. **46** #7805

**Kohen, A. W.** Sur la transformation de Fourier *p*-adique. **51** #3799

**Lai, Han Ch'ing** The Fourier transformations of closed operators on a dense subspace of $I^1(G)$. **48** #11923

**Larsen, Ronald** The multipliers for functions with Fourier transforms in $L_p$. **46** #4108

**Lawrence, Peter Ashley** A characterization of algebraic measures. **50** #10691

**Leblanc, Noël** Sur les isomorphismes d'algèbres de restriction. **49** #5723

**de Leeuw, Karel** An harmonic analysis for operators. I. Formal properties. **52** #3884

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**Pedemonte, Luisa** A problem on singular Fourier-Stieltjes series. **52** #14857

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**Pigno, Louis** (*with* Saekī, Sadahiro) Measures whose transforms vanish at infinity. **47** #5522

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(*with* Saekī, Sadahiro) Fourier-Stieltjes transforms which vanish at infinity. **53** #1174

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(*with* Saekī, Sadahiro) Interpolation by transforms of discrete measures. **51** #13589

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**Pym, John** (*with* Vasudeva, Harkrishan) An inequality between square norms on dual groups. **49** #5724

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**Ritter, Gunter** *See* **Hewitt, Edwin**, **54** #8162; **Hewitt, Edwin**, **55** #8698 *and* **Hewitt, Edwin**, **57** #13379

**Rjadnov, A. V.** Groups for which the zeros of the Fourier transform of continuous finitely supported functions have zero Haar measure. (Russian. English summary) **53** #14021

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**Saekī, Sadahiro** *See* **Pigno, Louis**, **47** #5522; **Pigno, Louis**, **51** #13589 *and* **Pigno, Louis**, **53** #1174

**Schreiber, Bertram M.** *See* **Itô, Takashi**, **45** #2409

**Self, William M.** Some consequences of the Beurling-Helson theorem. **52** #8798

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**Woodcock, C. F.** Fourier analysis for *p*-adic Lipschitz functions. **49** #9541

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**Bachelis, Gregory F.** (*with* Pigno, Louis) A characterization of compact multipliers. (**45** #9060)

**Baker, R. C.** A diophantine problem on groups. IV. (**50** #7068)

**Chaney, R. W.** Note on Fourier-Stieltjes transforms of continuous and absolutely continuous measures. (**51** #11000)

**Dhombres, Jean G.** Autour de l'interpolation de Lagrange. (**50** #2732 (EA **58**) )

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**Dreseler, Bernd** Saturationstheorie auf kompakten topologischen Gruppen. (English summary) (**56** #6221)

**Fresnel, Jean** (*with* de Mathan, Bernard) Sur la transformation de Fourier *p*-adique. (**53** #13173)

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**Graham, Colin C.** Sur un théorème de Katznelson et McGehee. (**47** #3910)

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**Wells, Benjamin B., Jr.** Restrictions of Fourier transforms of continuous measures. (**47** #3913)

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**Eguchi, Masaaki** The Fourier transform of the Schwartz space on a semisimple Lie group. (**50** #10154)

**Geller, Daryl** Fourier analysis on the Heisenberg group. (**58** #6069)

**Grosser, Siegfried** (*with* Mosak, Richard D.; Moskowitz, Martin) Duality and harmonic analysis on central topological groups. I. (**49** #5225a (E **49** #5225c) )

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**Kleppner, Adam** (*with* Lipsman, Ronald L.) Group extensions and the Plancherel formula. (**48** #11390)

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**Mosak, Richard D.** *See* **Grosser, Siegfried; et al.,** (**49** #5225a (E **49** #5225c) ); **Grosser, Siegfried; et al.,** (**49** #5225b) *and* **Grosser, Siegfried; et al.,** (**49** #5225c)

**Moskowitz, Martin** *See* **Grosser, Siegfried; et al.,** (**49** #5225a (E **49** #5225c) ); **Grosser, Siegfried; et al.,** (**49** #5225b) *and* **Grosser, Siegfried; et al.,** (**49** #5225c)

**Picardello, Massimo Angelo** Lacunary sets in discrete noncommutative groups. (Italian summary) (**49** #9543)

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**Russo, Bernard** Recent advances in the Hausdorff Young theorem. (**58** #29808)

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**Sally, Paul J., Jr.** (*with* Warner, Garth) The Fourier transform on semisimple Lie groups of real rank one. (**56** #8755)

**Šondin, Ju. G.** A Fourier expansion that is connected with the Lorentz group in the space of generalized functions with the support in the light cone. (Russian. English summary) (**57** #12782)

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**Macfadyen, N. W.** A Laplace transform on the Lorentz groups. II. The general case. **48** #9266

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**Hirschfeld, Rudolf A.** A characterization of Fourier-Stieltjes transforms on vector spaces. (**50** #2437)

**Karpovsky, Mark G.** Harmonic analysis over finite commutative groups in linearization problems for systems of logical functions. (**55** #5315)

**Nichanian, Marc** Transformées de Fourier des distributions de type positif sur SL(2, $R$). (**50** #2824)

**Peyrière, Jacques** *See* **Daboussi, Hédi,** (**49** #2602)

**Pyt'ev, Ju. P.** $(G, \hat{G})$-covariant transformations, and estimates of the transforms. (Russian. English summary insert) (**49** #1839)

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**Domar, Yngve** An extremal problem for positive definite functions. **52** #3886

**Dreseler, Bernd** (*with* Schempp, Walter) Spaces of test functions and theorems of the Bochner-Schoenberg-Eberlein type. **53** #14023

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**Figà-Talamanca, Alessandro** (*with* Picardello, Massimo Angelo) Functions that operate on the algebra $B_0(G)$. **58** #2021

**Haussmann, U.** The inversion theorem and Plancherel's theorem in a Banach space. **49** #5726

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**Henrichs, Rolf Wim** Über Fortsetzung positiv definiter Funktionen. **58** #2022

**Horn, Roger A.** Quadratic forms in harmonic analysis and the Bochner-Eberlein theorem. **51** #11019

**Husain, Taqdir** (*with* Warsi, S. A.) Positive definite functions for the class $L_p(G)$. **52** #11478

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**Lumer, Gunter** Bochner's theorem, states, and the Fourier transforms of measures. **49** #5728

**Maserick, P. H.** BV-functions, positive-definite functions and moment problems. **52** #1172

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**McMullen, John R.** ★Extensions of positive-definite functions. **56** #3573

**Nussbaum, A. Edward** Integral representation of functions and distributions positive definite relative to the orthogonal group. **48** #11925

**Osipov, V. F.** Invariant positive definite functions. (Russian. English summary) **46** #9648

**Ovčinnikov, S. V.** Positive definite functions on Chevalley groups. (Russian) **45** #464

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**Peters, Justin** Representing positive definite $B$-invariant functions on $[FC]_B^-$ groups. **54** #8166

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**Rider, Daniel** Functions which operate on positive definite functions. **54** #858

**Saworotnow, Parfeny P.** Semigroups with positive definite structure. **47** #9176

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**Schmidt, Klaus** On a characterisation of certain infinitely divisible positive definite functions and measures. **45** #4065

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**Sjögren, Peter** Noyaux singuliers positifs et ensembles exceptionnels. **57** #17128

**Soardi, Paolo Maurizio** *See* **Inglis, Ian R., 58** #29848

**Veech, William A.** The tail of a positivity-preserving semigroup. **51** #6293

**Veron, A.** Positive definite operator-valued functions in a Banach space. (Russian. Georgian and English summaries) **49** #5729

**Walter, Martin E.** $W^*$-algebras and nonabelian harmonic analysis. **50** #5365

**Warsi, S. A.** *See* **Husain, Taqdir, 52** #11478

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**Ataman, Yaşar** On positive definite measures. (**51** #13582)

**Berg, Christian** Sur les semi-groupes de convolution. (**52** #778)

(*with* Forst, Gunnar) A remark on the behaviour at infinity of the potential kernel. (**52** #779)

(*with* Forst, Gunnar) ★Potential theory on locally compact abelian groups. (**58** #1204)

**Bingham, N. H.** Positive definite functions on spheres. (**49** #4067)

**Derighetti, Antoine** Some results on the Fourier-Stieltjes algebra of a locally compact group. (**54** #856)

**Figà-Talamanca, Alessandro** Positive definite functions which vanish at infinity. (**58** #12206)

**Forst, Gunnar** The Lévy-Hinčin representation of negative definite functions. (**54** #8781)

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**Guichardet, Alain** Cohomology of topological groups and positive definite functions. (**49** #460)

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**Henrichs, Rolf Wim** Ein maximales Maß, dessen Träger keine Extremalpunkte enthält. (**51** #788)

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**Kaniuth, Eberhard** (*with* Schlichting, Günter) Zur harmonischen Analyse klassenkompakter Gruppen. II. (**47** #5521)
Topology in duals of SIN-groups. (**48** #4197)

**Kucharczak, J.** (*with* Woyczyński, Wojbor A.) Bochner's theorem for Orlicz sequence spaces. (Russian summary) (**48** #8740)

**Kuelbs, James D.** (*with* Mandrekar, Vidyadhar) Harmonic analysis on certain vector spaces. (**46** #320)
Fourier analysis on linear metric spaces. (**48** #9788)

**Lindahl, Robert J.** (*with* Maserick, P. H.) Positive-definite functions on involution semigroups. (**45** #916)

**Mandrekar, Vidyadhar** *See* **Kuelbs, James D.**, (**46** #320)

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**Parthasarathy, Kalyanapuram Rangachari** The central limit theorem for positive definite functions on locally compact groups. (**50** #8634)
(*with* Schmidt, Klaus) Stable positive definite functions. (**51** #6907)

**Phillips, John** Positive integrable elements relative to a left Hilbert algebra. (**53** #1276)

**Schlichting, Günter** *See* **Kaniuth, Eberhard**, (**47** #5521)

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**Schreiber, Jean-Pierre** Une caractérisation des nombres de Pisot-Salem des corps $p$-adiques $\mathbf{Q}_p$. (**58** #27881)

**Siebert, Eberhard** Stetige Halbgruppen von Wahrscheinlichkeitsmaßen auf lokalkompakten maximal fastperiodischen Gruppen. (**48** #12621)

**Stewart, James** Counterexample to a conjecture on positive definite functions. (**46** #9640)
Functions with a finite number of negative squares. (**47** #707)
Positive definite functions and generalizations, an historical survey. (**55** #3679)

**Woyczyński, Wojbor A.** *See* **Kucharczak, J.**, (**48** #8740)

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**Boyer, Robert** (*with* Martin, Robert Paul) The group $C^*$-algebra of the de Sitter group. **57** #13381

**Brown, Gavin** Idempotents in the closure of the characters. **46** #5937

**Dooley, A. H.** (*with* Soardi, Paolo Maurizio) Local $p$-Sidon sets for Lie groups. **58** #12210

**Gol'dfil'd, S. M.** Functions with compact Beurling spectrum. (Russian. Uzbek summary) **56** #983

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**Soardi, Paolo Maurizio** *See* **Dooley, A. H.**, **58** #12210

**Walter, Martin E.** A duality between locally compact groups and certain Banach algebras. **50** #14067

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**Armacost, D. L.** Mapping properties of characters of LCA groups. (**46** #7441)

**Bożejko, Marek** Sidon sets in dual objects of compact groups. (**50** #896)

**Ha, Kwang Chul** On the self dual locally compact Abelian groups with compact radical. (**57** #6285)

**Hauenschild, Wilfried** (*with* Kaniuth, Eberhard) Harmonische Analyse auf Gruppen mit endlich-dimensionalen irreduziblen Darstellungen. (**52** #10951)

**Huang, Ter Jenq** On topologies of maximally almost periodic groups. (**58** #6939)

**Jewett, Robert I.** Spaces with an abstract convolution of measures. (**52** #14840)

**Kaniuth, Eberhard** *See* **Hauenschild, Wilfried**, (**52** #10951)

**Liukkonen, John R.** (*with* Mosak, Richard D.) Harmonic analysis and centers of Beurling algebras. (**57** #10359)

**Morris, Sidney A.** ★Pontryagin duality and the structure of locally compact abelian groups. (**56** #529)

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**Venkataraman, Rangachari** A characterization of Pontryagin duality. (**54** #7696)

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Spectral synthesis in some spaces of bounded continuous functions. **58** #23350

**Baker, R. C.** A Diophantine problem on groups. II. **46** #613

**Basov, A. V.** Construction of a family of intermediate ideals for subsets of manifolds of codimension 1 in $R^n, n \geqslant 3$. (Russian. English summary) **51** #13591

**Benedetto, John J.** (LF) spaces and distributions on compact groups and spectral synthesis on $R/2\pi Z$. **45** #5670
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**Benke, George** Arithmetric structure and lacunary Fourier series. **46** #614

**Blei, Ron C.** A note on some characterizations of Sidon sets. **46** #2357

**Bloom, Walter R.** Sets of $p$-spectral synthesis. **54** #3303

**Bohnke, Georges** Synthèse des sphères pour l'algèbre de Sobolev. **53** #6240

**Chilana, Ajit Kaur** (*with* Ross, Kenneth A.) Spectral synthesis in hypergroups. **58** #29851

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**Doss, Raouf** Représentation des fonctions continues de deux variables réelles. **54** #13469
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**Drury, Stephen William** On non-triangular sets in tensor algebras. **53** #11309

**Dunkl, Charles F.** (*with* Ramirez, Donald E.) Sidon sets on compact groups. **46** #5938

**Ebenstein, Samuel E.** $\Lambda(p)$ sets and Sidon sets. **46** #9649

**Fel'dman, G. M.** On the spectral theory of representations of locally compact abelian groups. (Russian) **45** #2093

**Ferru, Hélène** Extension au cas de $\mathbf{R}^2$, de méthodes et de résultats relatifs au problème de la synthèse spectrale. **45** #5671

**Galanis, E.** A theorem on bounded synthesis. **45** #4066
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**Graham, Colin C.** Sur un théorème de Katznelson et McGehee. **47** #3910

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**Katznelson, Yitzhak** (*with* Körner, Thomas W.) An algebra dense in its tilde algebra. **50** #895
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**Körner, Thomas W.** Bernard's theorem. **55** #13162
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**Kotzmann, Ernst** Le théorème généralisé de Wiener pour les groupes du type de Heisenberg. (English summary) **52** #1173

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**Lohoué, Noël** Remarques sur les ensembles de synthèse des algèbres de groupe localement compact. **50** #14069

**Lust-Piquard, F.** Le problème de la synthèse et de la $p$-finesse pour certaines orbites de groupes linéaires dans $A_p^r\ (\mathbf{R}^n)$. **49** #5734

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**McGehee, O. Carruth** Helson sets in $T^n$. **52** #14862
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**McKennon, K.** ★Multipliers, positive functionals, positive-definite functions, and Fourier-Stieltjes transforms. **55** #13174

**Meyer, Yves** Synthèse harmonique. **53** #11310
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Pisot numbers and the problem of synthesis. **55** #13172
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**Osipov, V. F.** Spectral synthesis on the sphere. (Russian) **46** #4109
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**Ramirez, Donald E.** *See* **Dunkl, Charles F.**, **46** #5938

**Ross, Kenneth A.** Sur les compacts associés à un ensemble de Sidon. **46** #5940
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**Schreiber, Jean-Pierre** Un ensemble remarquable du point de vue de l'analyse de Fourier sur $Q_p$. **46** #5941

**Stegeman, J. D.** Méthodes combinatoires en analyse harmonique. **53** #14024
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**Tewari, U.** Harmonic synthesis of Kronecker sets. **55** #13163

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**Varopoulos, Nicholas Th.** The embedding of $A(E)$ into $\bar{A}(E)$. **55** #13168
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**Warner, C. Robert** A class of spectral sets. **53** #14025

**Williams, Lynn R.** Generalized Hausdorff-Young inequalities and mixed norm spaces. **46** #9653

**Woodward, Gordon S.** Une classe d'ensembles épars. **45** #4067

**Yap, Leonard Y. H.** Every Segal algebra satisfies Ditkin's condition. **46** #2358

**Yger, Alain** Une généralisation d'un théorème de J. Delsarte. **58** #23351

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**Akinyẹle, Olusola** Spectral synthesis of the algebra of zonal functions on the sphere. (Italian summary) (**58** #6945)

**Basov, A. V.** The incomparability of two algebras of continuous functions on the sphere. (Russian. English summary) (**58** #29846)

**Bennett, Colin** (*with* Gilbert, John E.) Homogeneous algebras on the circle. I. Ideals of analytic functions. (French summary) (**49** #3546)

(*with* Gilbert, John E.) Homogeneous algebras on the circle. II. Multipliers, Ditkin conditions. (French summary) (**49** #3547)

**Domar, Yngve** On spectral synthesis in commutative Banach algebras using closed ideals of finite co-dimension. (**52** #11605)

**Drury, Stephen William** Sur les ensembles de Dirichlet. (**45** #901)

**Fel'dman, G. M.** The semisimplicity of an algebra generated by an isometric operator. (Russian) (**50** #14245)

*See also* **Ljubič, Ju. I.; et al.**, (**50** #534)

**Ferru, Hélène** Caractérisation des nombres de Pisot complexes. Application géométrique. (**58** #27889)

**Gilbert, John E.** *See* **Bennett, Colin**, (**49** #3546) *and* **Bennett, Colin**, (**49** #3547)

**Gurariĭ, V. P.** Harmonic analysis in spaces with weight. (Russian) (**58** #17684)

**Kaijser, Sten** Representations of tensor algebras as quotients of group algebras. (**46** #9764)

**Kaufman, Robert P.** $M$-sets and distributions. (**53** #8772b)

**Körner, Thomas W.** A pseudofunction on a Helson set. I. (**53** #8772a)

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**Liukkonen, John R.** (*with* Mosak, Richard D.) Harmonic analysis and centers of group algebras. (**50** #2815)

**Ljubič, Ju. I.** (*with* Macaev, V. I.; Fel'dman, G. M.) Representations with a separable spectrum. (Russian) (**50** #534)

**Lust-Piquard, F.** Produits tensoriels injectifs d'espaces de Sidon. (**52** #11617)

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**Malliavin, Paul** Sur l'analyse harmonique de certaines classes de séries de Taylor. (**58** #28509)

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**Meyer, Yves** À propos de la formule de Poisson. (**54** #5734)

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Ultra-thin symmetric sets and harmonic analysis. (**55** #13171)

★Trois problèmes sur les sommes trigonométriques. (**57** #3096)

Les nombres de Pisot et la synthèse spectrale. (**51** #10281)

**Mosak, Richard D.** *See* **Liukkonen, John R.**, (**50** #2815)

**Muñoz Díaz, Jesús** Characterization of differentiable algebras and spectral synthesis for modules over such algebras. (Spanish) (**47** #830)

**Reiter, Hans** ★Classical harmonic analysis and locally compact groups. (**46** #5933)

**Rosenberg, Milton** *See* **Masani, P.**, (**53** #6347)

**Saekĭ, Sadahiro** The ranges of certain isometries of tensor products of Banach spaces. (Russian) (**46** #7924)

Tensor products of $C(X)$-spaces and their conjugate spaces. (**52** #15040)

**Varopoulos, Nicholas Th.** Groupes de fonctions continues en analyse harmonique. (**54** #3304)

Sur les quotients des algèbres uniformes. (**45** #2480)

**Wildfogel, Dennis** Double algebras, Segal algebras and spectral synthesis. (**52** #6431)

**Yap, Leonard Y. H.** On two classes of subalgebras of $L^1(G)$. (**47** #717)

## 43A46 Special sets (thin sets, Helson sets, Kronecker sets, Sidon sets, etc.)

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**Benedetto, John J.** ★Harmonic analysis on totally disconnected sets. **56** #6287

**Benke, George** The absolute convergence of certain lacunary Fourier series. **49** #7705

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**Björk, Jan-Erik** Sidon sets. **55** #13165

**Blei, Ron C.** On subsets with associated compacta in discrete abelian groups. **47** #2274

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A simple Diophantine condition in harmonic analysis. **57** #10368

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A tensor approach to interpolation phenomena in discrete abelian groups. **50** #14071

Sidon partitions and $p$-Sidon sets. **56** #16261

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**Bożejko, Marek** The existence of $\Lambda(p)$ sets in discrete noncommutative groups. (Italian summary) **49** #9544 (E **52** #11480)

Sidon sets in dual objects of compact groups. **50** #896

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**Brown, Gavin** An application of Riesz products. **53** #8794

**Cygan, Jacek** Riesz products on non-commutative groups. **50** #2820

**Déchamps-Gondim, Myriam** Ensembles de Sidon topologiques. (English summary) **49** #5731

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Densité harmonique et espaces de Banach ne contenant pas de sous-espace fermé isomorphe à $c_0$. (English summary) **57** #10369

**De-Michele, Leonede** (*with* Soardi, Paolo Maurizio) Existence of Sidon sets in discrete FC-groups. **53** #1175

**Dooley, A. H.** On lacunary sets for nonabelian groups. **58** #2026

**Dressler, Robert E.** (*with* Parker, Willard A.; Pigno, Louis) Sidon sets and small $p$ sets. **47** #7336

(*with* Pigno, Louis) Rosenthal sets and Riesz sets. **58** #23352

(*with* Pigno, Louis) Une remarque sur les ensembles de Rosenthal et Riesz. (English summary) **51** #11020 (EA **52**)

**Drury, Stephen William** Unions of sets of interpolation. **52** #14865

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**Dudley, E. V.** Sidon sets associated with a closed subset of a compact abelian group. **56** #6288

**Ebenstein, Samuel E.** *See* **Bachelis, Gregory F.**, **52** #3887

**Edwards, Robert E.** (*with* Hewitt, Edwin; Ross, Kenneth A.) Lacunarity for compact groups. III. **52** #8801

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(*with* Ross, Kenneth A.) Helgason's number and lacunarity constants. **49** #5735

(*with* Ross, Kenneth A.) $p$-Sidon sets. **50** #10693

**Galanis, E.** A problem on the union of Helson sets. **47** #7337

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**Gregory, Michael B.** $p$-Helson sets, $1<p<2$. **47** #7338

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**Ho, Yin** On the Sidon set and $p$-Sidon set of symmetric pairs. **57** #1026

**Hutchinson, M. F.** Non-tall compact groups admit infinite Sidon sets. **57** #17130

**Izuchi, Keiji** Sidon sets and small $M_0$-sets. **51** #8749

Sidon sets and Fourier-Stieltjes transforms of some prime $L$-ideals. **56** #3574

**Johnson, Gerald W.** (*with* Woodward, Gordon S.) On $p$-Sidon sets. **50** #2821

Theorems on lacunary sets, especially $p$-Sidon sets. **55** #988

**Katznelson, Yitzhak** Suites aléatoires d'entiers. **53** #1176

(*with* McGehee, O. Carruth) Un ensemble d'entiers $E$ tel que $B_0(E)\neq B(E)_0$. **51** #1289

**Kaufman, Robert P.** A remark on Sidon sets. **48** #4655

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**Körner, Thomas W.** Relations between Dirichlet, Kronecker and Helson sets. **55** #13170

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**Lindahl, Lars-Åke** Dirichlet, Kronecker and Helson sets. **55** #13161

**López, Jorge M.** (*with* Ross, Kenneth A.) ★Sidon sets. **55** #13173 (EA **55/56**)

**Lust, Françoise** Ensembles de Rosenthal et ensembles de Riesz. (English summary) **53** #8795

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**Méla, Jean-François** Sur certains ensembles exceptionnels en analyse de Fourier. **54** #860

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**Miles, Frank B.** Existence of special $K$-sets in certain locally compact abelian groups. **47** #2275

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**Oberlin, Daniel M.** $p$-Helson sets. **54** #8167

**Parker, Willard A.** Central Sidon and central $\Lambda_p$ sets. **47** #9178

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**Picardello, Massimo Angelo** Lacunary sets in discrete noncommutative groups. (Italian summary) **49** #9543

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**Pigno, Louis** Fourier-Stieltjes transforms which vanish at infinity off certain sets. **58** #23353

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**Pisier, Gilles** Ensembles de Sidon et processus gaussiens. (English summary) **58** #23354

**Poulsen, F.** Combinatorial methods and Sidon sets. **55** #13166

**Price, John F.** On local central lacunary sets for compact Lie groups. **52** #11482

**Rider, Daniel** Norms of characters and central $\Lambda_p$ sets for U($n$). **52** #14867

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**Ross, Kenneth A.** Some new characterizations of Sidon sets. **52** #8803

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**Sanders, J. W.** Weighted Sidon sets. **53** #8797

**Sato, Enji** On the finite sum of Kronecker sets. **54** #862

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**Soardi, Paolo Maurizio** *See* **De-Michele, Leonede**, **53** #1175

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**Blei, Ron C.** On Fourier Stieltjes transforms of discrete measures. (**51** #3798)
A uniformity property for Λ(2) sets and Grothendieck's inequality. (**58** #6892)
**Bożejko, Marek** (*with* Pytlik, Tadeusz) Weak uniqueness sets for discrete groups. (**58** #1001)
**Cecchini, Carlo** Lacunary Fourier series on compact Lie groups. (**51** #11017)
**Dressler, Robert E.** (*with* Pigno, Louis) Sets of uniform convergence and strong Riesz sets. (**50** #5343)
**Dudley, E. V.** The Gaussian law and the law of the iterated logarithm for lacunary sets of characters. (**52** #1146)
**Dunkl, Charles F.** (*with* Ramirez, Donald E.) Helson sets in compact and locally compact groups. (**48** #2667)
**Glicksberg, Irving** Interpolation by cones. (**48** #11918)
**Graham, Colin C.** Sur un théorème de Katznelson et McGehee. (**47** #3910)
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**Kaufman, Robert P.** Analysis on some linear sets. (French summary) (**49** #5677)
Sets of multiplicity and differentiable functions. (**49** #5678)
A Kronecker theorem in functional analysis. (**48** #6809)
**Kitada, Toshiyuki** Changes of Fourier coefficients and local Sidon sets. (**55** #6125)
**(Lindahl, Lars-Åke)** *See* **Thin sets in harmonic analysis,** (**52** #14800)
**Méla, Jean-François** Approximation diophantienne et ensembles lacunaires. (**58** #29782)
**Meyer, Yves** ★Algebraic numbers and harmonic analysis. (**58** #5579)
**Pedemonte, Luisa** Sets of uniform convergence. (**52** #11483)
Sets of uniform convergence. (**54** #13471)
**Pigno, Louis** (*with* Saekī, Sadahiro) Fourier-Stieltjes transforms which vanish at infinity. (**53** #1174)
*See also* **Dressler, Robert E.,** (**50** #5343)
**(Poulsen, F.)** *See* **Thin sets in harmonic analysis,** (**52** #14800)
**Pytlik, Tadeusz** *See* **Bożejko, Marek,** (**58** #1001)
**Ramirez, Donald E.** *See* **Dunkl, Charles F.,** (**48** #2667)
**Saekī, Sadahiro** *See* **Pigno, Louis,** (**53** #1174)
**Smith, Brent P.** Helson sets not containing the identity are uniform Fatou-Zygmund sets. (**56** #16260)
**Tewari, U.** Harmonic synthesis of Kronecker sets. (**55** #13163)
**Harmonic analysis** *See* **Thin sets in harmonic analysis,** (**52** #14800)
**Seminar:**
**Thin Sets in Harmonic Analysis** *See* **Thin sets in harmonic analysis,** (**52** #14800)
**Thin sets in harmonic analysis** ★Thin sets in harmonic analysis. (**52** #14800)

## 43A50 Convergence of Fourier series and of inverse transforms

**Edwards, Robert E.** Some Fourier division problems. **45** #2411
**Gosselin, J. A.** (*with* Young, Wo Sang) On rearrangements of Vilenkin-Fourier series which preserve almost everywhere convergence. **53** #3598
**Hunt, Richard A.** (*with* Taibleson, Mitchell H.) Almost everywhere convergence of Fourier series on the ring of integers of a local field. **47** #718
**López, Jorge M.** Some problems concerning the convergence of lacunary trigonometric series. **58** #6938
**Lust-Piquard, F.** Étude d'ensembles de Ditkin fort dans les algèbres tensorielles et les algèbres de groupe. **46** #9650
**Meaney, Christopher** A Cantor-Lebesgue theorem for spherical convergence on a compact Lie group. **58** #29854
**Onneweer, C. W.** (*with* Waterman, Daniel) Uniform convergence of Fourier series on groups. I. **45** #4063
Uniform convergence of Fourier series on groups. II. **45** #4064
Absolute convergence of Fourier series on certain groups. **47** #5524
Absolute convergence of Fourier series on certain groups. II. **52** #8805
**Pedemonte, Luisa** Sets of uniform convergence. **52** #11483
Sets of uniform convergence. **54** #13471
**Price, John F.** Local Sidon sets and uniform convergence of Fourier series. **49** #11152
On the integral divergence of Dirichlet kernels for the second unitary and special unitary groups. **52** #11484
**Ragozin, David L.** Approximation theory and absolute convergence of Fourier series on compact Lie groups. **49** #1016
**Stanton, Robert J.** (*with* Tomas, Peter A.) Convergence of Fourier series on compact Lie groups. **53** #6241
(*with* Tomas, Peter A.) Polyhedral summability of Fourier series on compact Lie groups. **58** #29855
**Sugiura, Mitsuo** . Fourier series of smooth functions on compact Lie groups. **45** #3641
**Taibleson, Mitchell H.** *See* **Hunt, Richard A., 47** #718
**Tomas, Peter A.** *See* **Stanton, Robert J., 53** #6241 *and* **Stanton, Robert J., 58** #29855
**Waterman, Daniel** *See* **Onneweer, C. W., 45** #4063
**Young, Wo Sang** *See* **Gosselin, J. A., 53** #3598

Secondary classifications:

**Bachelis, Gregory F.** (*with* Pigno, Louis) On multipliers with unconditionally converging Fourier series. (**45** #4062)
**Gibbs, J. Edmund** Discrete complex Walsh functions. (**45** #7327)
Sine waves and Walsh waves in physics. (**45** #7328)
**Pigno, Louis** *See* **Bachelis, Gregory F.,** (**45** #4062)
**Ragozin, David L.** Approximation theory, absolute convergence, and smoothness of random Fourier series on compact Lie groups. (**53** #13961)
**Rubinšteĭn, A. I.** *See* **Vilenkin, N. Ja.,** (**53** #8777)
**Vilenkin, N. Ja.** (*with* Rubinšteĭn, A. I.) A certain theorem of S. B. Stečkin on absolute convergence, and series in systems of characters of zero-dimensional abelian groups. (Russian) (**53** #8777)
**Young, Wo Sang** Mean convergence of generalized Walsh-Fourier series. (**52** #14828)

## 43A55 Summability methods on groups and semigroups

**Bragard, G. K.** Das Saturationsverhalten spezieller Summationsverfahren auf kompakten Gruppen. **53** #1177
**Chou, Ching** The multipliers of the space of almost convergent sequences. **47** #3914
**Clerc, Jean-Louis** Localisation des sommes de Riesz sur un groupe de Lie compact. (See Zbl **338** #22007)
**Edwards, Robert E.** (*with* Hewitt, Edwin; Ross, Kenneth A.) Lacunarity for compact groups. I. **45** #6981
**Hewitt, Edwin** *See* **Edwards, Robert E.; et al., 45** #6981
**Ross, Kenneth A.** *See* **Edwards, Robert E.; et al., 45** #6981

Secondary classifications:

**Arandelović, D.** Sur un théorème mercerien asymptotique général pour des fonctions à comportement régulier. (**57** #10305)
**Gel′fand, I. M.** The cohomology of infinite dimensional Lie algebras: some questions of integral geometry. (**55** #13505)
**Shapiro, Victor L.** Sets of uniqueness on the 2-torus. (**46** #7798)

## 43A60 Almost periodic functions on groups and semigroups

**Argabright, Loren N.** On the mean value of a weakly almost periodic function. **46** #5942
**Basit, Bolis R.** A connection between the almost periodic functions of Levitan and almost automorphic functions. (Russian. English summary) **45** #5664
Les fonctions abstraites presque automorphiques et presque périodiques au sens de Levitan, et leurs différences. (English summary) **57** #3751
**Baskakov, A. G.** Some tests for the almost periodicity of bounded functions. (Russian) **58** #2027
**Berglund, John F.** On extending almost periodic functions. **54** #863
(*with* Milnes, Paul) Algebras of functions on semitopological left-groups. **54** #10982
**Chou, Ching** Weakly almost periodic functions with zero mean. **50** #897
Weakly almost periodic functions and almost convergent functions on a group. **52** #14868
**Davis, Henry W.** Generalized almost periodicity in groups. **50** #898
**Dunkl, Charles F.** (*with* Ramirez, Donald E.) Subalgebras of the dual of the Fourier algebra of a compact group. **46** #5943
(*with* Ramirez, Donald E.) Weakly almost periodic functionals carried by hypercosets. **45** #463
**Glicksberg, Irving** Weakly almost periodic functions and generators of invariant filters. **51** #8750
**Granirer, Edmond E.** Weakly almost periodic and uniformly continuous functionals on the Fourier algebra of any locally compact group. **49** #1017
**Hartman, Stanisław** Remark on interpolation by L-almost periodic functions. **50** #14072
**Holdgrün, Horst S.** Zum Hauptsatz fastperiodischer Vektoren. **54** #5748
**Huang, Ter Jenq** On topologies of maximally almost periodic groups. **58** #6939
**Hurd, Albert** Near periods and Bohr compactifications. **58** #12212
**Iseki, Kiyoshi** (*with* Jaiswal, Anuradha; Singh, Bijendra) Non-Archimedean Banach space valued almost periodic functions. **53** #14026
**Jaiswal, Anuradha** *See* **Sharma, P. L.; et al., 53** #6242; **Sharma, P. L.; et al., 53** #8800 *and* **Iseki, Kiyoshi; et al., 53** #14026
**Junghenn, Hugo D.** Tensor products of spaces of almost periodic functions. **52** #6331
**Ljubarskiĭ, M. G.** Definitions of the almost periodic functions of Levitan. (Russian) **55** #13175
**Lovicar, Vladimír** Generalization of the theorem on the argument of almost periodic function. (Czech summary) **51** #6294
**Milnes, Paul** On the extension of continuous and almost periodic functions. **52** #3888
An extension theorem for functions on semigroups. **54** #8168
Almost automorphic functions and totally bounded groups. **55** #8700
*See also* **Berglund, John F., 54** #10982
**Muni, Giuseppe** Funzioni quasi periodiche rispetto a un gruppo di omeomorfismi. (English summary) **51** #13593
**Pigno, Louis** (*with* Saekī, Sadahiro) On the spectra of almost periodic functions. **53** #11312
**Porada, Jadwiga** A property of a decomposition of weakly almost periodic functions. **53** #11313
**Precupanu, Anca** Relations entre les fonctions et les suites presque-automorphes. (Romanian summary) **46** #9654
Fonctions $F$-presque-périodiques et $F$-asymptotiquement presque-périodiques.

(Romanian summary) 53 #8799
**Ramirez, Donald E.** Weakly almost periodic functions. 58 #6940
*See also* **Dunkl, Charles F., 45 #463** *and* **Dunkl, Charles F., 46 #5943**
**Reich, Axel** Über den Satz von Jessen-Winter für topologische Gruppen. 58 #29856
**Saekī, Sadahiro** *See* **Pigno, Louis,** 53 #11312
**Sakai, Kôkichi** Applications of the invariant mean on $WAP(G)$. 57 #17132
**Ščerbakov, B. A.** A certain general property of compact primitives of abstract functions. (Russian) 51 #1290
**Sharma, P. L.** (*with* Jaiswal, Anuradha; Singh, Bijendra) A note on almost periodic functions. 53 #8800
(*with* Jaiswal, Anuradha; Singh, Bijendra) Semifield valued almost periodic functions on groups. 53 #6242
**Singh, Bijendra** *See* **Sharma, P. L.; et al.,** 53 #6242; **Sharma, P. L.; et al.,** 53 #8800 *and* **Iseki, Kiyoshi; et al.,** 53 #14026
**Slook, T. H.** Not quite, but almost. 49 #7706
**Terras, Riho** Almost automorphic functions on topological groups. 45 #5665
On almost periodic and almost automorphic differences of functions. 47 #719
**Tonev, Toma V.** The Bohr-van Kampen theorem on semigroups. (Russian) 48 #6821
**Ts'êng, Chün Hung** (*with* Ts'êng, Chün Shan) Tolerance spaces and almost periodic functions. 58 #23355
**Ts'êng, Chün Shan** *See* **Ts'êng, Chün Hung,** 58 #23355
**Veech, William A.** $\mathcal{A}$-almost automorphic functions. 50 #5368
**Veith, Wilbur P.** A bounded difference property for classes of Banach-valued functions. 52 #8806
**Vesentini, Edoardo** Fonctions holomorphes presque-périodiques et fonctions de type positif sur les domaines de Siegel. 46 #5679
**Woodward, Gordon S.** Invariant means and ergodic sets in Fourier analysis. 51 #11021
The generalized almost periodic part of an ergodic function. 52 #3889
**Ylinen, Kari** Characterizations of $B(G)$ and $B(G)\cap AP(G)$ for locally compact groups. 54 #13472

Secondary classifications:

**Anki Reddy, K. C.** *See* **Sharma, P. L.; et al.,** (54 #13843)
**Auslander, Louis** (*with* Brezin, Jonathan) Uniform distribution in solvmanifolds. (46 #295)
**Bauer, Walter** Rhythmische und schwach rhythmische Abbildungen. (45 #8769)
**Benedetto, John J.** Idelic pseudo-measures and Dirichlet series. (58 #27880)
**Bohr, H.** ★Fastperiodische Funktionen. (49 #9533)
**Brezin, Jonathan** *See* **Auslander, Louis,** (46 #295)
**Davis, Henry W.** On a formula for Haar measure in compact groups. (48 #2662)
**Dimitrov, D. B.** The almost periodic and $N$-almost periodic solutions of a certain difference equation. (Russian) (49 #7697)
**Fel'dman, G. M.** Isometric representations of locally compact abelian groups. (Russian) (48 #2303)
**Frisch, Marc** Propriétés asymptotiques des vibrations des tores. (58 #23086)
**Funakosi, Shunsuke** *See* **Sharma, P. L.; et al.,** (54 #13843)
**Gaal, Steven A.** ★Linear analysis and representation theory. (56 #5777)
**Laison, Diane** (*with* Laison, Gary) Weak almost periodicity on $C^*$-algebras. (55 #6196)
**Laison, Gary** *See* **Laison, Diane,** (55 #6196)
**Larsen, Ronald** Almost periodic Radon-Nikodým derivatives. (53 #1161)
**Ma, Tsoy Wo** Mean spaces of topological groups. (54 #10977)
**Meyer, Yves** Special trigonometric series. (54 #2613)
Adèles et séries trigonométriques spéciales. (54 #268)
**Milnes, Paul** Extension of continuous functions on topological semigroups. (52 #14142)
**Nazarov, F.** On the theory of almost periodic functions. (Russian. Tajiki summary) (53 #11299)
**Reich, Axel** Kriterien für Fastperiodizität. (56 #973)
**Sharma, P. L.** (*with* Anki Reddy, K. C.; Funakosi, Shunsuke) Remarks on uniform space valued almost periodic functions depending on parameters. (54 #13843)
**Veech, William A.** A fixed point theorem-free approach to weak almost periodicity. (49 #7998)
**Žikov, V. V.** Some remarks on compactness conditions in connection with the work of M. I. Kadec on the integration of abstract almost periodic functions. (Russian) (46 #2186)

## 43A65 Representations of groups and semigroups

**Akemann, Charles A.** (*with* Walter, Martin E.) The Riemann-Lebesgue property for arbitrary locally compact groups. 53 #3599
**Arzumanjan, V. A.** $*$-representations of inverse semigroups. (Russian. Armenian and English summaries) 58 #17689
**Braunss, Günter** On Weyl operators over locally compact abelian groups. 51 #1291
**Conze, Jean-Pierre** *See* **Guivarc'h, Yves,** 53 #3600
**Fel'dman, G. M.** The property of being a basis of a system of proper subspaces of an isometric representation. (Russian. English summary) 58 #12213
Harmonic analysis of nonunitary representations of locally compact abelian groups. (Russian) 49 #3458
*See also* **Ljubič, Ju. I.; et al.,** 45 #7392
**Gross, Kenneth I.** (*with* Kunze, Ray A.) Bessel functions and representation theory. I. 54 #3305
**Guivarc'h, Yves** (*with* Conze, Jean-Pierre) Propriété de droite fixe et fonctions harmoniques positives. 53 #3600
**Jenkins, J. W.** Representations of exponentially bounded groups. 56 #12770
**Korkina, E. I.** Simplicity of the spectrum of some representations. (Russian. English summary) 57 #7040
**Kunze, Ray A.** *See* **Gross, Kenneth I.,** 54 #3305
**Ljubič, Ju. I.** (*with* Macaev, V. I.; Fel'dman, G. M.) The separability of the spectrum of a representation of a locally compact abelian group. (Russian) 45 #7392
**Macaev, V. I.** *See* **Ljubič, Ju. I.; et al.,** 45 #7392
**Sinjavs'kiĭ, V. V.** The spectral theory of representations in topological spaces. (Russian) 53 #6243
**Thayer F., F. Javier** Almost periodic operators of inner automorphism groups. 56 #3575
**Walter, Martin E.** *See* **Akemann, Charles A.,** 53 #3599

Secondary classifications:

**Barnes, Bruce Alan** Representations of the $l^1$-algebra of an inverse semigroup. (53 #1169)
**Baskakov, A. G.** On the spectral analysis of isometric representations of locally compact abelian groups. (Russian) (57 #6283)
**Borel, Armand** ★Représentations de groupes localement compacts. (54 #2871)
**Choda, Hisashi** On a simple representation of groups as outer automorphism groups of the hyperfinite $\mathrm{II}_1$-factor. (46 #7916)
**Duflo, Michel** Semigroups of complex measures on a locally compact group. (52 #11466)
**Dunkl, Charles F.** (*with* Ramirez, Donald E.) ★Representations of commutative semitopological semigroups. (57 #3301)
**Guichardet, Alain** Cohomologie des groupes localement compacts et produits tensoriels continus de représentations. (English summary) (54 #12963)
**Gurariĭ, D. L.** The separability of the spectrum of a representation of a connected nilpotent Lie group. (Russian) (53 #10976)
**Hotta, Ryoshi** On a realization of the discrete series for semisimple Lie groups. (46 #5531)
**Kalton, Nigel J.** (*with* Wood, Geoffrey V.) Idempotents of norm one and Banach algebra representations of compact groups. (53 #1170)
**Korsuns'kiĭ, L. M.** Integral representation of invariant positive definite kernels. I. (Russian. English summary) (46 #9647)
**Macfadyen, N. W.** On the nondegenerate complementary series of representations of the group $\mathrm{SU}_{2,2}$. (Italian and Russian summaries) (46 #7445)
**Molčanov, V. F.** The decomposition of the tensor square of a representation of the complementary series of the unimodular group of real matrices of order two. (Russian) (56 #3190)
**Moore, Calvin C.** (*with* Wolf, Joseph A.) Totally real representations and real function spaces. (46 #9232)
(*with* Repka, Joe) A reciprocity theorem for tensor products of group representations. (56 #8749)
**Ramirez, Donald E.** *See* **Dunkl, Charles F.,** (57 #3301)
**Repka, Joe** *See* **Moore, Calvin C.,** (56 #8749)
**Siebert, Eberhard** Über die Erzeugung von Faltungshalbgruppen auf beliebigen lokalkompakten Gruppen. (56 #12768a)
On the generation of convolution semigroups on arbitrary locally compact groups. II. (56 #12768b)
**Sugiura, Mitsuo** ★Unitary representations and harmonic analysis. (58 #16977)
**Wolf, Joseph A.** *See* **Moore, Calvin C.,** (46 #9232)
**Wood, Geoffrey V.** *See* **Kalton, Nigel J.,** (53 #1170)

## 43A70 Analysis on specific locally compact abelian groups [See also 12A85.]

**Baker, R. C.** A diophantine problem on groups. III. 45 #2408
**Boseck, Helmut** (*with* Czichowski, Günter) Grundfunktionen und verallgemeinerte Funktionen auf topologischen Gruppen. II. 51 #11022
**Chao, Jia Arng** (*with* Taibleson, Mitchell H.) A sub-regularity inequality for conjugate systems on local fields. 49 #3459
$H^p$-spaces of conjugate systems on local fields. 51 #1292
Maximal singular integral transforms on local fields. 51 #11023
**Czichowski, Günter** *See* **Boseck, Helmut,** 51 #11022
**Daly, James E.** Algebras of special singular integrals over local fields. 51 #8751
Local field singular integrals with complex homogeneity. 52 #14869
**Ebenstein, Samuel E.** Some $H^p$ spaces which are uncomplemented in $L^p$. 47 #7339
**Gosselin, John A.** Almost everywhere convergence of Vilenkin-Fourier series. 50 #5369
**Helson, Henry** Flows on tori. 51 #1293
Structure of Blaschke cocycles. 49 #7707
Compact groups with ordered duals. IV. 47 #7340
**Hoffmann, Laurence D.** Radial limit sets on the torus. 48 #9270
**Macfadyen, N. W.** A Laplace transform on the Lorentz groups. I. Quasiregular representations. 46 #5944
**Meyer, Yves** Adèles et séries trigonométriques spéciales. 47 #5525
**Milaszewicz, J. P.** Hardy spaces of almost periodic functions. 55 #6128
**Moran, William** On almost periodic compactifications of locally compact groups. 45 #5277
**Nussbaum, A. Edward** On functions positive definite relative to the orthogonal group and the representation of functions as Hankel-Stieltjes transforms. 48 #11926
**Onneweer, C. W.** Differentiation on a $p$-adic or $p$-series field. 58 #23356
**Penn, Howard Lewis** Inner-outer factorization of functions whose Fourier series vanish off a semigroup. 56 #16264
**Ricci, Fulvio** Local properties of the central Wiener algebra on the regular set of a compact Lie group. (French summary) 58 #2028
**Rubinšteĭn, A. I.** The moduli of continuity of functions that are defined on a zero-dimensional group. (Russian) 57 #10371
**Taibleson, Mitchell H.** The failure of even conjugate characterizations of $H^1$ on local fields. 58 #6941
*See also* **Chao, Jia Arng,** 49 #3459
**Wells, Benjamin B., Jr.** Rearrangements of functions on the ring of integers of a $p$-series field. 58 #6942
**Witherspoon, J. T.** Müntz's theorem for group algebras. 50 #7957
**Yale, Keith** Cocyles with range $\{\pm 1\}$. 47 #7341

Secondary classifications:

**Aarnes, Johan F.** A large bi-invariant nuclear function space on a locally compact group. (**46** #9720)
**Berman, Stephen Jay** Abstract wave equations with finite velocity of propagation. (**47** #660)
  Wave equations with finite velocity of propagation. (**48** #9118)
**Bloom, Walter R.** A characterization of Lipschitz classes on finite dimensional groups. (**54** #5704)
**Downey, Charles P.** Classification of singular integrals over a local field. (**53** #1189)
**Dreseler, Bernd** (*with* Schempp, Walter) On the convergence and divergence behaviour of approximation processes in homogeneous Banach spaces. (**51** #8710)
**Forelli, Frank** Fourier theory and flows. (**55** #1071)
**Hazod, Wilfried** Eine Produktformel für Halbgruppen von Wahrscheinlichkeitsmassen auf Lie-Gruppen. (**47** #7514)
**Muhly, Paul S.** The distant future. (**50** #14239)
  Function algebras and flows. III. (**58** #12383a)
  Function algebras and flows. IV. (**58** #12383b)
**Otaki, Hiroshi** A relation between the F. and M. Riesz theorem and the structure of LCA groups. (**56** #16252)
**Precupanu, Anca** Relations entre les fonctions et les suites presque-automorphes. (Romanian summary) (**46** #9654)
**Schempp, Walter** *See* **Dreseler, Bernd,** (**51** #8710)
**Schreiber, Jean-Pierre** Approximations diophantiennes et problèmes additifs dans les groupes abéliens localement compacts. (**51** #416)
**Taibleson, Mitchell H.** The existence of natural field structures for finite dimensional vector spaces over local fields. (**54** #5195)

## 43A75 Analysis on specific compact groups

**Barker, William H.** Positive definite distributions on unimodular Lie groups. **52** #14870
**Chao, Jia Arng** Lusin area functions on local fields. **56** #12771
**Clerc, Jean-Louis** Quelques théorèmes de convergence pour l'analyse harmonique de SU(2). **52** #14871
**Coifman, Ronald R.** (*with* Weiss, Guido) Multiplier transformations of functions on SU(2) and $\sum 2$. **47** #9179
  (*with* Weiss, Guido) Central multiplier theorems for compact Lie groups. **48** #9271
**Dirl, R.** The Hilbert space $L^2(SU(2))$ as a representation space for the group $(SU(2)\times SU(2))\circledS A$ **56** #12772
**Folland, Gerald B.** The tangential Cauchy-Riemann complex on spheres. **46** #8266
**Glicksberg, Irving** Extensions of the F. and M. Riesz theorem. **54** #3306
**Helson, Henry** Cocycles in harmonic analysis. **55** #990
  Analyticity on compact abelian groups. **55** #989
  Compact groups with ordered duals. V. **54** #5749a
  Compact groups with ordered duals. VI. **54** #5749b
**Itzykson, Claude** Toeplitz determinants as group averages. **49** #3460
**Labunec, V. G.** (*with* Sitnikov, O. P.) Generalized and fast Fourier transforms on an arbitrary finite abelian group. (Russian) **58** #12214
**Lagzdiņš, A.** Expansion of a vector field on the unit sphere by means of tensors. (Russian. Latvian and English summaries) **50** #2822
  Expansion of functions on the group SO(3) by tensor componenents. (Russian. Latvian and English summaries) **51** #3802
**Onneweer, C. W.** (*with* Waterman, Daniel) Fourier series of functions of harmonic bounded fluctuation on groups. **58** #2029
  Fractional differentiation on the group of integers of a $p$-adic or $p$-series field. (Russian summary) **56** #3576
**Rider, Daniel** SU($n$) has no infinite local $L_p$ sets. (Italian summary) **53** #6244
**Schempp, Walter** Approximation of $G$-homogeneous Banach spaces. **58** #23357
**Sitnikov, O. P.** *See* **Labunec, V. G.,** **58** #12214
**Strichartz, Robert S.** Multipliers for spherical harmonic expansions. **46** #5945
**Taibleson, Mitchell H.** ★Fourier analysis on local fields. **58** #6943
**Uno, Yoshikazu** Lipschitz functions and convolution on bounded Vilenkin groups. **58** #6944
**Vesentini, Edoardo** Holomorphic almost periodic functions and positive-definite functions on Siegel domains. **51** #6295
**Vretare, Lars** On $L_p$ Fourier multipliers on a compact Lie-group. **51** #6296
**Wang, Andrew B.** An analogue of the Paley-Wiener theorem for certain function spaces on SL(2, C). **50** #7958
**Waterman, Daniel** *See* **Onneweer, C. W.,** **58** #2029
**Weiss, Guido** Harmonic analysis on compact groups. **57** #13383
  *See also* **Coifman, Ronald R.,** **47** #9179 *and* **Coifman, Ronald R.,** **48** #9271
**Weiss, Norman J.** $L^P$ estimates for bi-invariant operators on compact Lie groups. **45** #5278

Secondary classifications:

**Allouche, Jean-Paul** Vibrations non bornées des tores plats. (English summary) (**58** #22003)
**Benedetto, John J.** (LF) spaces and distributions on compact groups and spectral synthesis on $R/2\pi Z$. (**45** #5670)
**Benke, George** Lacunarity and Lipschitz properties in totally disconnected abelian groups. (**58** #12165)
**Cahn, Robert S.** The asymptotic expansion of the zeta-function of a compact semisimple Lie group. (**53** #1658)
**Cowling, Michael G.** The Kunze-Stein phenomenon. (Italian summary) (**58** #1008)
**Dirl, R.** The Hilbert space $L^2$(SU(2)) as a representation space for the group SU(2)×SU(2). (**56** #8760)
**Hasumi, Morisuke** Theory of invariant subspaces. (Japanese) (**58** #30274)
**Price, John F.** On the integral divergence of Dirichlet kernels for the second unitary and special unitary groups. (**52** #11484)
**Ricci, Fulvio** Su alcuni quozienti dell'algebra di Fourier centrale di un gruppo di Li compatto. (English summary) (**58** #28276)
**Rider, Daniel** Functions which operate on $\mathcal{F}L_p(T)$, $1<p<2$. (**46** #5926)
  Random Fourier series. (**58** #6886)
**Riss, Jean** Analyse harmonique et familles sommables. (**52** #8377)
**Rudin, Walter** Harmonic analysis in polydiscs. (**54** #10643)
**Stanton, Robert J.** Mean convergence of Fourier series on compact Lie groups. (**54** #8173)
**Strichartz, Robert S.** Multiplier transformations on compact Lie groups and algebras (**50** #10156)
**Zamota, A. V.** Certain integral equations with kernels that are invariant with respect to groups. (Russian) (**49** #5760)

## 43A80 Analysis on other specific Lie groups

**Ando, Sheichi** An analogue of the Paley-Wiener theorem for a group of linear transformations of a straight line. (Russian) **49** #11153
  An analogue of the Paley-Wiener theorem for a certain matrix group. (Russian) **56** #3577
**Carroll, Robert Wayne** (*with* Silver, Howard) Suites canoniques de problèmes de Cauchy singuliers. **45** #462
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**Malliavin-Brameret, Marie-Paule** (*with* Malliavin, Paul) Factorisations et lois limites de la diffusion horizontale au-dessus d'un espace riemannien symétrique. (**50** #11478)

(*with* Malliavin, Paul) Holonomie stochastique au-dessus d'un espace riemannien symétrique. (**54** #11531)

**Michelson, H. Lee** Fatou theorems for eigenfunctions of the invariant differential operators on symmetric spaces. (**47** #7659)

**Milton, E. O.** *See* **Carmichael, Richard D.**, (**51** #13675)

**Minemura, Katsuhiro** Eigenfunctions of invariant differential operators on a symmetric space. (Japanese) (**57** #6290)

(*with* Ōshima, Toshio) Boundary value problem with regular singularity and Helgason-Okamoto conjecture. (**58** #31303)

*See also* **Hashizume, Michihiko; et al.**, (**55** #3168)

**Mizony, Michel** Sur l'analyse harmonique dans certains espaces homogènes. I. (**58** #28275)

**Monastyrskiĭ, M. I.** (*with* Perelomov, A. M.) Coherent states for groups of motions of symmetric spaces. (Russian) (**50** #7418)

**Ogden, R. D.** (*with* Vági, Stephen) Harmonic analysis and $H^2$-functions on Siegel domains of type II. (**46** #5946)

**Okamoto, Kiyosato** *See* **Eguchi, Masaaki; et al.**, (**49** #3027); **Inoue, Toru; et al.**, (**51** #804); **Hashizume, Michihiko; et al.**, (**55** #3168) *and* **Kowata, Atsutaka**, (**56** #16000)

**Ōshima, Toshio** A boundary value problem for a system of differential equations with regular singularities. (Japanese) (**57** #7637)

(*with* Sekiguchi, Jirō) Boundary value problem on symmetric homogeneous spaces. (**56** #15830)

*See also* **Minemura, Katsuhiro**, (**58** #31303)

**Perelomov, A. M.** *See* **Monastyrskiĭ, M. I.**, (**50** #7418)

**Putz, Robert Byrne** *See* **Kaplan, Aroldo G.**, (57 #16715) *and* **Korányi, Adam**, (58 #11223)

**Raïs, Mustapha** ★Distributions homogènes sur des espaces de matrices. (58 #22412)

**Ramirez, Donald E.** *See* **Dunkl, Charles F.**, (49 #10939)

**Ranga Rao, R.** (*with* Rubel, Lee A.) Invariant subspaces of $L^\infty$ of certain homogeneous spaces. (51 #1280)

**Reckziegel, Helmut** (*with* Richberg, Rolf) Über eine Verallgemeinerung der Formel von Funk und Hecke. (47 #3719)

**Richberg, Rolf** *See* **Reckziegel, Helmut**, (47 #3719)

**Riemersma, Martinus** Amenability of homogeneous spaces. (48 #4641)

**Rogov, V.-B. K.** Eigenfunctions of the Beltrami-Laplace operator on hyperboloids. (Russian) (45 #4458)

**Roth, Jean-Pierre** Sur les semi-groupes à contraction invariants sur un espace homogène. (51 #3961)
*See also* **Hirsch, Francis**, (45 #9189) *and* **Hirsch, Francis**, (51 #3960)

**Rouvière, François** *See* **Cerezo, André**, (55 #3160)

**Rubel, Lee A.** *See* **Ranga Rao, R.**, (51 #1280)

**Sekiguchi, Jirō** *See* **Ōshima, Toshio**, (56 #15830)

**Šibasov, L. P.** The functional $X_{n,m}^{\lambda}$: its application to the reconstruction of integrals over horospheres and hyperboloids. (Russian) (58 #1013)
Integral geometry on horospheres and hyperboloids in Φ-Euclidean spaces. (Russian) (58 #28304)

**Siciak, Józef** Holomorphic continuation of harmonic functions. (50 #5017)

**Silver, Howard** *See* **Carroll, Robert Wayne**, (50 #10572)

**Stein, Elias M.** Some problems in harmonic analysis suggested by symmetric spaces and semi-simple groups. (58 #28279)
Maximal functions. I. Spherical means. (54 #8133a)
Maximal functions. II. Homogeneous curves. (54 #8133b)
Maximal functions: Poisson integrals on symmetric spaces. (54 #8133c)

**Stoll, Manfred** Hardy-type spaces of harmonic functions on symmetric spaces of noncompact type. (51 #945)

**Sumitomo, Takeshi** On a certain class of Riemannian homogeneous spaces. (48 #12411)
On the commutator of differential operators. (47 #5785)

**Tanaka, Makoto** *See* **Inoue, Toru; et al.**, (51 #804)

**Tolimieri, Richard** The theta transform and the Heisenberg group. (55 #5795)
*See also* **Auslander, Louis**, (54 #2877)

**Tsujishita, Toru** Integral transformations associated with double fiberings. (58 #24410)

**Urakawa, Hajime** On the Hardy class of harmonic sections and vector-valued Poisson integrals. (55 #728)
Analytic torsion of space forms of certain compact symmetric spaces. (57 #17728)

**Vági, Stephen** Harmonic analysis on Cartan and Siegel domains. (57 #16719)
*See also* **Ogden, R. D.**, (46 #5946)

**Venkov, A. B.** Expansion in automorphic eigenfunctions of the Laplace-Beltrami operator in classical symmetric spaces of rank one, and Selberg's trace formula. (Russian) (58 #27784)
(*with* Kalinin, V. L.; Faddeev, L. D.) A nonarithmetic derivation of the Selberg trace formula. (Russian) (58 #21949)

**Vesentini, Edoardo** Fonctions holomorphes presque-périodiques et fonctions de type positif sur les domaines de Siegel. (46 #5679)
Holomorphic almost periodic functions and positive-definite functions on Siegel domains. (51 #6295)

**Wallach, Nolan R.** ★Harmonic analysis on homogeneous spaces. (58 #16978)

**Weiss, Guido** *See* **Coifman, Ronald R.**, (47 #9179); **Coifman, Ronald R.**, (56 #6264); **Coifman, Ronald R.**, (58 #2019) *and* **Coifman, Ronald R.**, (58 #2020)

**Wolf, Joseph A.** *See* **Cahn, Robert S.**, (53 #1657) *and* **Cahn, Robert S.**, (53 #6245)

**Bull. Soc. Math. France Mém.** *See* **Raïs, Mustapha**, (58 #22412)

## 43A90 Spherical functions

**Christensen, Jens Peter Reus** Uniform measures and spherical harmonics. **54** #867

**Clerc, Jean-Louis** Les sommes partielles de la décomposition en harmoniques sphériques ne convergent pas dans $L^p$ $(p \neq 2)$. **45** #2405
Une formule asymptotique du type Mehler-Heine pour les zonoles d'un espace riemannien symétrique. **54** #13476

**Cohn, Leslie** Some theorems on *C*-functions. **52** #6333

**Dunkl, Charles F.** Spherical functions on compact groups and applications to special functions. **58** #29865

**Durbin, John R.** Spherical functions on wreath products. **58** #2033

**Faraut, Jacques** (*with* Harzallah, Khèlifa) Fonctions sphériques de type positif sur les espaces hyperboliques. **45** #6982
Noyaux sphériques sur un hyperboloïde à une nappe. **54** #8171

**Flensted-Jensen, Mogens** Spherical functions on rank one symmetric spaces and generalizations. **49** #11155
A proof of the Plancherel formula for the universal covering group of SL(2, **R**), using spectral theory and spherical functions. **58** #23363
Spherical functions and discrete series. **52** #11487
Spherical functions on a simply connected semisimple Lie group. **56** #16266
Spherical functions on a simply connected semisimple Lie group. II. The Paley-Wiener theorem for the rank one case. **56** #16267

**Gangolli, Ramesh** Spherical functions on semisimple Lie groups. **54** #8172

**Harzallah, Khèlifa** *See* **Faraut, Jacques**, **45** #6982

**Helgason, Sigurdur** Spherical functions, spherical representations and correspondence theorems for the spherical Fourier transform. **56** #12774
Geometric reduction of differential operators. **50** #10696
Some results on eigenfunctions on symmetric spaces and eigenspace representations. **58** #17696

**Jyoo, Yeong Heum** Spherical functions and unitary representations in mathematical physics. (Korean. English summary) **58** #29857

**Laha, R. G.** Spherical functions on compact Riemannian symmetric spaces. **49** #1018

**Lucquiaud, Jean-Claude** Expression sous forme covariante des fonctions sphériques zonales attachées aux groupes SO(*N*) et SH(*N*). (English summary) **58** #12216

**Miller, John J. H.** (*with* Simms, David J.) On the coefficients of an asymptotic expansion of spherical functions on symmetric spaces. **47** #721
(*with* Simms, David J.) On the differential equation for spherical functions on certain symmetric spaces. **50** #10697

**Mizony, Michel** Contribution à l'analyse harmonique sphérique. **52** #3893
Algèbres et noyaux de convolution sur le dual sphérique d'un groupe de Lie semi-simple, non compact et de rang 1. **55** #991

**Molčanov, V. F.** Spherical functions on hyperboloids. (Russian) **58** #2034

**Nichanian, Marc** Transformées de Fourier des distributions de type positif sur SL(2, *R*). **50** #2824

**Nussbaum, A. Edward** Extension of positive definite functions and representation of functions in terms of spherical functions in symmetric spaces of noncompact type of rank 1. **52** #6334

**Okamoto, Kiyosato** Boundary value problems in symmetric spaces. (Japanese) **57** #17133

**Ol'šaneckiĭ, M. A.** Green's functions for the Laplace-Beltrami operator on symmetric spaces. (Russian) **53** #6247
The asymptotic behavior of spherical functions. (Russian) **57** #13385
An operation of Liouville type on symmetric spaces with a complex group of motions. (Russian) **58** #23364

**Sekiguchi, Jirō** Zonal spherical functions on some symmetric spaces. **57** #1027
On zonal harmonics of SL(3, **R**). (Japanese) **58** #29866

**Shimizu, Yoshiyuki** An analogue of the Paley-Wiener theorem for certain function spaces on the generalized Lorentz group. **54** #868

**Shin'ya, Hitoshi** Spherical matrix functions on locally compact groups. **50** #14076
Spherical matrix functions on locally compact groups of a certain type. **58** #2035

**Simms, David J.** *See* **Miller, John J. H.**, 47 #721 *and* **Miller, John J. H.**, **50** #10697

**Stanton, Robert J.** Mean convergence of Fourier series on compact Lie groups. **54** #8173
(*with* Tomas, Peter A.) Expansions for spherical functions on noncompact symmetric spaces. **58** #23365

**Strichartz, Robert S.** Fourier transforms and non-compact rotation groups. **52** #1178

**Takahashi, Reiji** Fonctions sphériques dans les groupes Sp(*n*, 1). **51** #1298
Spherical functions in $Spin_0\,(1, d)/Spin(d-1)$ for $d=2$, 4 and 8. **56** #12775

**Tirao, Juan A.** Spherical functions. **57** #13386

**Tomas, Peter A.** *See* **Stanton, Robert J.**, **58** #23365

**Tret'jakova, N. N.** Some properties of *n*-dimensional generalized spherical functions. (Russian) **58** #17697

**Vretare, Lars** Elementary spherical functions on symmetric spaces. **56** #6289

Secondary classifications:

**Allan, Nelo D.** Hecke algebras of non principal congruence subgroups. (56 #3195)

**Arthur, James** A theorem on the Schwartz space of a reductive Lie group. (57 #532)

**Askey, Richard A.** (*with* Bingham, N. H.) Gaussian processes on compact symmetric spaces. (54 #10984)

**Bingham, N. H.** *See* **Askey, Richard A.**, (54 #10984)

**Cohn, Leslie** ★Analytic theory of the Harish-Chandra *C*-function. (54 #10496)

**Dao Van Ča** Spherical sections on a compact homogeneous space. (Russian) (53 #11103)

**Dreseler, Bernd** On summation processes of Fourier expansions for spherical functions. (58 #2031)

**Dunkl, Charles F.** Singular integrals on ultraspherical series. (45 #2496)

**Flensted-Jensen, Mogens** (*with* Ragozin, David L.) Spherical functions are Fourier transforms of $L_1$-functions. (51 #807)

**Gangolli, Ramesh** (*with* Warner, Garth) On Selberg's trace formula. (53 #3199)

**Harzallah, Khèlifa** Distributions et représentations associées á $SO_0(1, q)$. (53 #5809)

**Helgason, Sigurdur** ★Analysis on Lie groups and homogeneous spaces. (47 #5179)

**Lachaud, Gilles** Spectral analysis of automorphic forms on rank one groups by perturbation methods. (49 #3232)

**Macdonald, I. G.** Harmonic analysis on semi-simple groups. (54 #7709)
Spherical functions on groups of *p*-adic type. (54 #10509)

**Mautner, Friederich Ignaz** Spherical functions and Hecke operators. (53 #13119)

**Mendes, Roberto De Maria Nunes** Symmetries of spherical harmonics. (50 #10155)

**Mizony, Michel** Sur l'analyse harmonique dans certains espaces homogènes. I. (58 #28275)

**Muta, Yôichi** Positive-definite spherical distributions on a semisimple Lie group. (54 #865)

**Ōshima, Toshio** A realization of Riemannian symmetric spaces. (57 #16716)

**Osipov, V. F.** Certain questions of spectral synthesis on spheres. (Russian) (50 #2819)

**Penney, Richard C.** Spherical distributions on Lie groups and $C^\infty$ vectors. (56 #15837)

**Rader, Cary** ★Spherical functions on a semi-simple Lie group. (58 #16974)

**Ragozin, David L.** *See* **Flensted-Jensen, Mogens**, (51 #807)

**Rao, Murali** Note on spherical harmonics. (55 #3359)

**Rosenberg, Jonathan** A quick proof of Harish-Chandra's Plancherel theorem for spherical functions on a semisimple Lie group. (58 #22391)

**Strasburger, Aleksander** Inducing spherical representations of semi-simple Lie groups. (53 #8332)

**Takahashi, Reiji** Fonctions de Jacobi et représentations des groups de Lie. (53 #5968)

**Trombi, P. C.** On the continuous spectrum for a semisimple Lie group. (49 #470)

**Vretare, Lars** On a recurrence formula for elementary spherical functions on symmetric spaces and its applications to multipliers for the spherical Fourier transform. (58 #6946)

**Warner, Garth** *See* **Gangolli, Ramesh**, (53 #3199)

### 43A95 Categorical methods [See also 18–XX.]

**Helemskiĭ, A. Ja.** A locally compact abelian group with trivial two-dimensional Banach cohomology is compact. (Russian) **46** #4110

**Pelletier, Joan Wick** Errata: "Duality in analysis from the point of view of triples" (J. Algebra **19** (1971), 228–253). **50** #14077

Secondary classifications:

**Greene, William A.** Projective limits in harmonic analysis. (**51** #13127)

**Peetre, Jaak** (*with* Sparr, Gunnar) Interpolation of normed Abelian groups. (**48** #891)

**Sparr, Gunnar** *See* **Peetre, Jaak**, (**48** #891)

## 44–XX INTEGRAL TRANSFORMS, OPERATIONAL CALCULUS [For fractional derivatives and integrals, see 26A33.]

Secondary classifications:

**Makanina, T. A.** The invariance of certain weighted $L_p$-spaces with respect to Calderón-Zygmund transformations. (Russian) (**53** #6303)

### 44–01 Elementary exposition (collegiate level)

**Davies, Brian** ★Integral transforms and their applications. **57** #17134

**Ditkin, V. A.** (*with* Prudnikov, A. P.) ★Интегральные преобразования и операционное исчисление. (Russian) [Integral transforms and operational calculus] **58** #29867a

(*with* Prudnikov, A. P.) ★Transformations intégrales et calcul opérationnel. **58** #29867b

**(Embarek, Djilali)** *See* **Ditkin, V. A.; et al.**, **58** #29867b

**Galicyn, A. S.** (*with* Žukovskiĭ, A. N.) ★Интегральные преобразования и специальные функции в задачах теплопроводности. (Russian) [Integral transforms and special functions in heat conduction problems] (See RŽMat **1976** #8 B19K)

**Giffin, Walter C.** ★Transform techniques for probability modeling. **55** #13176

**Gopalan, R.** (*with* Trasi, M. S.) A note on an inverse partial differential operator. **48** #11929

**(Kumar, Virendra)** *See* Štokalo, Ĭ. Z., **58** #29868

**Miles, John W.** ★Integral transforms in applied mathematics. (See Zbl **226** #44001)

**Prudnikov, A. P.** *See* **Ditkin, V. A.**, **58** #29867a *and* **Ditkin, V. A.**, **58** #29867b

**Sneddon, Ian Naismith** ★The use of integral transforms. (See Zbl **237** #44001)

*See also* **Štokalo, Ĭ. Z.**, **58** #29868

**Steece, Bert M.** Integral transforms in statistics. **58** #6947

**Štokalo, Ĭ. Z.** ★Operational calculus. **58** #29868

**Trasi, M. S.** *See* **Gopalan, R.**, **48** #11929

**Widder, D. V.** ★An introduction to transform theory. (See Zbl **219** #44001)

**Žukovskiĭ, A. N.** *See* **Galicyn, A. S.**, (See RŽMat **1976** #8 B19K)

Secondary classifications:

**Amerio, Luigi** ★Funzioni analitiche e trasformazione di Laplace. (**50** #4903)

**Kirsanov, V. I.** ★Элементы теории функций комплексного переменного и операционного исчисления. (Russian) [Elements of the theory of functions of a complex variable and of the operational calculus] (**50** #4905)

**Šahno, K. U.** ★Елементы теории функций комплексной переменной и операционного исчисления. (Russian) [Elements of the theory of functions of a complex variable and of operational calculus] (**56** #15889)

### 44–02 Advanced exposition (research surveys, etc.)

**Badii, Larry** *See* **Oberhettinger, Fritz**, **50** #5375

**Bryčkov, Ju. A.** (*with* Prudnikov, A. P.) ★Интегральные преобразования обобщенных функций. (Russian) [Integral transforms of generalized functions] **58** #2036

**Colombo, Serge** (*with* Lavoine, Jean) ★Transformations de Laplace et de Mellin. **50** #5371

**Lavoine, Jean** *See* **Colombo, Serge**, **50** #5371

**Oberhettinger, Fritz** ★Tables of Bessel transforms. **50** #5374

★Fourier transforms of distributions and their inverses. **50** #5373

(*with* Badii, Larry) ★Tables of Laplace transforms. **50** #5375

★Tables of Mellin transforms. **50** #5376

**Oldham, Keith B.** (*with* Spanier, Jerome) ★The fractional calculus. **50** #14078

**Prudnikov, A. P.** *See* **Bryčkov, Ju. A.**, **58** #2036

**(Ross, Bertram)** *See* **Oldham, Keith B.; et al.**, **50** #14078

**Spanier, Jerome** *See* **Oldham, Keith B.**, **50** #14078

**Bibliography:**

**Fractional calculus** *See* **Oldham, Keith B.; et al.**, **50** #14078

**Tables:**

**Mellin transforms** *See* **Oberhettinger, Fritz**, **50** #5376

Secondary classifications:

**(Golo, V. L.)** *See* **Maslov, V. P.**, (**58** #23653)

**(Kul'man, N. K.)** *See* **Maslov, V. P.**, (**58** #23653)

**Maslov, V. P.** ★Operational methods. (**58** #23653)

**(Voropaeva, G. A.)** *See* **Maslov, V. P.**, (**58** #23653)

### 44–03 Historical

Secondary classifications:

**Braaksma, B. L. J.** In memoriam C. S. Meijer. (**51** #10009)

**Ljusternik, L. A.** (*with* Petrova, Svetlana S.) From the history of symbolic calculu (Russian) (**58** #21219)

**(Meijer, C. S.)** *See* **Braaksma, B. L. J.**, (**51** #10009)

**Petrova, L. T.** Early history of the Laplace transform. (Russian) (**58** #15969)

**Petrova, Svetlana S.** *See* **Ljusternik, L. A.**, (**58** #21219)

**Bibliography:**

**Meijer, C. S.** *See* **Braaksma, B. L. J.**, (**51** #10009)

**Obituary:**

**Meijer, C. S.** *See* **Braaksma, B. L. J.**, (**51** #10009)

### 44A05 General transforms [See also 42A76.]

**Abdel-Hameed, Mohamed** (*with* Proschan, Frank) Preservation of geometric propertie under an integral transformation. **53** #1179

**Aggarwala, Indira** (*with* Goyal, A. N.) On symmetrical Fourier kernels and self reciprocal functions of two variables. (Hindi. English summary) **56** #16268

**Bachert, P.** Zur Spektraltheorie der singulären Cosecans-Transformation. **58** #23366

**Callas, Louis** *See* **Polge, Robert J.**, **48** #6823

**Cooper, Jacob Lionel Bakst** Group representations and integral transforms. **50** #1407

**Datkaev, A. M.** (*with* Kupešev, B.) Inversion of integral operator polynomials. (Russian **56** #12776

**Dijksma, Aalt** (*with* de Snoo, Hendrik Simon Victor) Distributional Watson transforms **50** #10698

**Ditkin, V. A.** (*with* Prudnikov, A. P.) Integral transforms. (Russian) **58** #2037

**Elliott, Douglas F.** A class of generalized continuous orthogonal transforms. **57** #1037

**Emery, J. D.** (*with* Szeptycki, Paweł) Integral transformations on product spaces. **50** #7959

**Goyal, A. N.** *See* **Aggarwala, Indira**, **56** #16268

**Goyal, S. P.** A generalized integral transform. III. (Hindi. English summary) **55** #870

**Gulati, H. C.** Generalized integral transform of two variables. **45** #9067

**Gupta, R. K.** (*with* Gupta, S. D.) Some operational properties of generalized Legendr transform and their applications. II. **58** #12217

(*with* Gupta, S. D.) Operational calculus of spheroidal wave angle functio (generalized Legendre transform). **58** #12218

**Gupta, S. D.** *See* **Gupta, R. K.**, **58** #12217 *and* **Gupta, R. K.**, **58** #12218

**Jain, N. K.** On the extension of Mellin type integral transform. **58** #2038

**Joshi, B. K.** The inversion of a convolution transform. **57** #10373

**Joshi, D. G.** On chain transforms. **48** #9275

Transform of a product and Parseval relations. **54** #3307

**Kalla, S. L.** Some generalized theorems of integral transforms. **54** #3308

Some generalized theorems of fractional integration. **50** #900

**Kawabata, Shigetoku** General convergence theorems for the numerical function and th nonstationary stochastic processes. **51** #3805

**Kesarwani, Roop Narain** (*with* Wong, C. F.) Asymptotic behaviour of kernels of a integral transform. **46** #2359

**Kumbhat, R. K.** *See* **Saxena, Ram Kishore**, **52** #6335

**Kupešev, B.** *See* **Datkaev, A. M.**, **56** #12776

**Lemei, H.** Integral transforms related to a class of second order linear differentia equations. II. **48** #9276a

Integral transforms related to a class of second order linear differential equation III. **48** #9276b

**Leviatan, Dany** Representation of functions related to generalized completely monotoni functions. **49** #11156

**Mahajan, R. R.** (*with* Saxena, Rajendra K.) On a generalized double integral transform **57** #13387

**Nasim, C.** On Fourier transforms. **49** #7708

An inversion formula for a class of integral transforms. **53** #14029

**(Olesiakowa, Hanna)** *See* **Sneddon, Ian Naismith**, (Not reviewed)

**Pandey, J. N.** *See* **Pathak, Ram Shankar**, **56** #16269

**Pathak, Ram Shankar** A distributional generalised Stieltjes transformation. **53** #3601

(*with* Pandey, J. N.) Abelian theorems for Hardy transformations. **56** #16269

**Pathan, M. A.** On self reciprocal function. **48** #2673

**Peterson, G. E.** (*with* Tessereau, Harold) A note on *L-C* kernels. **45** #822

**Polge, Robert J.** (*with* Callas, Louis) Simplification of sequences of operators. **48** #6823

**Prasad, Y. N.** (*with* Singh, S. N.) On some theorems on the generalized multipl transform. (Hindi. English summary) **56** #16270

**Proschan, Frank** *See* **Abdel-Hameed, Mohamed**, **53** #1179

**Prudnikov, A. P.** *See* **Ditkin, V. A.**, **58** #2037

**Radecki, Jerzy** On integral transforms preserving convexity. **56** #12777

**Rao, V. V. L. N.** On self reciprocal functions and their kernels. **53** #6248

A property of self reciprocal functions. **58** #23367

**Rühs, Fritz** Zur Theorie der Integraltransformationen. **58** #29869

**Saxena, Rajendra K.** Certain kernel functions. **45** #2415

On the resultant of two functions. **45** #2416

*See also* **Mahajan, R. R.**, **57** #13387

**Saxena, Ram Kishore** (*with* Kumbhat, R. K.) Some properties of generalized Kobe operators. (Hindi. English summary) **52** #6335

**Shreshtha, R. M.** A note on a theory of integral transforms. **58** #29873

**Singh, Bhagat** Certain self-reciprocal functions. **48** #2674

**Singh, S. N.** *See* **Prasad, Y. N.**, **56** #16270

**Sneddon, Ian Naismith** ★Metoda transformacji całkowych w mieszanych zagadnieniac brzegowych klasycznej teorii sprężystości. (Polish) [The method of integral transform in mixed boundary value problems of the classical theory of elasticity] (Not reviewed

**de Snoo, Hendrik Simon Victor** Integral representations of Watson transforms. **48** #11930

*See also* **Dijksma, Aalt**, **50** #10698

**Soni, Kusum L.** (*with* Soni, Raj Pal) Integrability theorems for a class of integra transforms. **48** #4658

(*with* Soni, Raj Pal) Asympototic behavior of a class of integral transform **48** #2675 (*with* Soni, Raj Pal) The Parseval relation and monotone functions. **50** #7960

**Soni, Raj Pal** *See* **Soni, Kusum L.**, **48** #2675; **Soni, Kusum L.**, **48** #4658 *and* **Soni, Kusum L.**, **50** #7960

**Srivastava, Hari M.** (*with* Srivastava, Rekha) Certain multidimensional integral transformations. I. **58** #2039a

(*with* Srivastava, Rekha) Certain multidimensional integral transformations. II. **58** #2039b

**Srivastava, Rekha** *See* **Srivastava, Hari M.**, **58** #2039a *and* **Srivastava, Hari M.**, **58** #2039b

**Szeptycki, Paweł** *See* **Emery, J. D.**, **50** #7959

**Tessereau, Harold** *See* **Peterson, G. E.**, **45** #822

**Utembaev, N. A.** On the question of the estimation of the accuracy of the reconstruction of the original by means of its expansion in Laguerre functions. (Russian. Kazakh summary) **58** #29870

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**Wagner, Eberhard** Taubersche Sätze reeler Art für Integraltransformationen mit Kernen der Form exp $h(s)t$. (Russian, English and French summaries) **54** #13477

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**Dube, L. S.** An inversion of the $S_2$ transform for generalized functions. (**53** #3687)

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**Džrbašjan, M. M.** Harmonic analysis in the complex domain and applications in the theory of analytical and infinitely differentiable functions. (**53** #5893)

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**Marr, Robert B.** On the reconstruction of a function on a circular domain from a sampling of its line integrals. (**49** #932)

**Milman, Mario** Integral transforms of weak type between rearrangement invariant spaces. (**52** #6400)

**Necula, Maria-Ana** On some $z$-transform formulas. (**54** #14864)

**Perry, William L.** Inversion of general integral transforms. (**50** #5392)

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On symmetrical Fourier kernel. II. (**52** #11497)

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**Amerbaev, V. M.** ★Операционное исчисление и обобщенные ряды Лагерра. (Russian) [Operational calculus and generalized Laguerre series] **57** #1028

**Anandani, Parmanand** On some results involving generalized Legendre's associated functions and the $H$-functions. **50** #5377

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**Baĭmul'dina, S. A.** A method for the inversion of the Laplace integral transform by means of rational-fractional functions. (Russian) **56** #12778

**Berg, Lothar** Zur approximativen Umkehrung der Laplace-Transformation. **51** #11025

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**Bhonsle, B. R.** (*with* Chaudhary, M. S.) The complex Laplace-Hankel transformation of generalized functions. **57** #13388

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Operational representations for generalized hypergeometric polynomials. **50** #10699

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**Evans, Kenneth, Jr.** (*with* Jackson, E. Atlee) Double Laplace transformation in mixed boundary-initial value problems. **45** #828

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**Gupta, R. K.** Application of a theorem in operational calculus. **45** #7406

**Gupta, Sunil Kumar** Some properties of the generalized Laplace transform. **55** #6133

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**Rao, G. L. N.** A note on a representation of ${}_1F_1$-transformable distributions. **57** #7049

**Reddy, D. C.** (*with* Jagan, N. C.) Multidimensional transforms: new technique for the association of variables. **47** #7346

**Ressel, Paul** A short proof of Schoenberg's theorem. **53** #8803

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**Samar, M. S.** *See* **Nair, V. C.**, **54** #8174

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**Saxena, Vinod Prakash** Some rules in Laplace transform of one and two variables. **49** #11159

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**Schoenberg, Isaac Jacob** Remarks concerning a numerical inversion of the Laplace transform due to Bellman, Kalaba, and Lockett. **48** #4659

**Schuitman, A.** A testing function space for the two sided Laplace transform. **58** #12220

**Sen, Bibhutibhusan** ★An elementary treatise on Laplace transforms. **53** #8804

**Sevaria, K. S.** Some theorems on operational calculus. (Hindi. English summary) **46** #4112

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**Sharma, C. K.** Generalized Stieltjes transform. (Hindi. English summary) **48** #9279

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**Sharma, Umesh Chandra** Laplace transform and self-reciprocal functions. **45** #5673

**Singh, Bhagat** *See* **Yadava, S. R.**, **58** #2045

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**Smyšljaeva, L. G.** Some properties of discrete Laplace transforms. (Russian) **58** #23368

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**Srivastava, Aruna** Laplace transform $p^{-\varrho}e^{\psi}W_{k,r}(2np)G^{\alpha,\beta}_{\gamma,\delta}\left[\begin{matrix}(a_\gamma)\\(b_\delta)\end{matrix}\right]$. **55** #3687

**Srivastava, Sunil Kumar** A generalised Laplace transform. (Turkish summary) **50** #5381

**Štokalo, Ĭ. Z.** ★Операционное исчисление. (Russian) [Operational calculus] **55** #13177

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**Taylor, William J.** Inverse Gaussian transforms: general properties and application to Slater-type orbitals with noninteger and integer $n$ in the coordinate and momentum representations. **56** #16274

**Thomas, John G., Jr.** *See* **Debnath, Lokenath**, **55** #6132

**Upadhyaya, R. D.** Two more representation theorems for a generalised third iterate of the Laplace transform. **46** #7807

**Vasishta, Shiv Kant** (*with* Goyal, S. P.) Certain relations between generalized Kontorovich-Lebdev transform and the $H$-function transform. **57** #13391

**Verma, R. U.** Application of Laplace integrals to the solution of integral equatio (Spanish) **52** #11488

**Veršinin, V. D.** Determination of the original from finite values of the Laplace transfo and its derivatives. (Russian) **56** #16275

**(Vol′pert, G. A.)** *See* **Doetsch, Gustav**, **50** #2825

**Wainwright, William L.** A functional relation. **58** #12221

**Wanamaker, Wayne M.** *See* **Manougian, Manoug N.**, **48** #9278

**Weber, Hubert** ★Laplace-Transformation für Ingenieure der Elektrotechnik. **56** #12782

**Whitford, Anthony K.** Laplace-Stieltjes transforms of vector-valued measures. **47** #22

**Wong, R.** On Laplace transforms near the origin. **51** #3806

**Yadava, S. R.** On a convolution type integral. II. (Turkish summary) **50** #14080

Chain formulae in generalized Laplace transform. **47** #7347

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(*with* Singh, Bhagat) On generalized convolution transform in two variabl (Turkish summary) **58** #2045

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**Arora, K. L.** (*with* Kulshreshtha, S. K.) Double contour integrals involving associat Legendre functions and Meijer's $G$-function. (**57** #6541)

**Bakievič, N. I.** The Laplace transform of generalized functions of some classes a analytic functionals. (Russian) (**58** #30168)

**Belovs, M.** (*with* Cīrulis, T. T.) Integral representations of Mellin-Barnes type for t Fourier coefficients of the series expansions of originals in orthogonal systems functions. (Russian) (**56** #6269)

The F-A method of numerical inversion of the Laplace transform. (Russia (**56** #7118)

**Berg, Lothar** ★Operatorenrechnung. I: Algebraische Methoden. (**58** #6953)

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Distributionenalgebren mit der Eigenschaft $h\delta' = \delta' h$. (**55** #11035)

**Bozzo, Claude** Transformée de Laguerre d'un signal continu: relations entre les transformées en $\zeta$ et en $Z$. (**49** #6999)

**Burov, G. A.** On the theory of the expansion of rational-fractional functions. (Russia (**52** #10123)

**Cîrnu, Mircea** Laplace transform of distribution and ultradistribution functions. III, I (Romanian English summary) (**51** #3896)

**Cīrulis, T. T.** The F-A method for the inversion of the Laplace transform by means Legendre polynomials. (Russian) (**56** #7117)

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**Dahiya, R. S.** A note on integration of Lommel's function. (**53** #903)

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**Gupta, Sunil Kumar** A theorem on generalized Laplace transform. (**45** #7129)

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**Krylov, V. I.** (*with* Skoblja, N. S.) ★Handbook of numerical inversion of Lapla transforms. (**52** #12302)

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**Milton, E. O.** Asymptotic behavior of transforms of distributions. (**46** #9729)

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**Piessens, Robert** A bibliography on numerical inversion of the Laplace transform a applications. (**51** #11933)

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**Plazzi, Piero** Su certe equazioni convolutorie per distribuzioni. (English summar (**55** #3782)

**Preuss, Wolfgang** Eine Verallgemeinerung der Laplace-Transformation. (57 #13399)

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**Saakjan, B. A.** Differential operators of fractional order, and their associated $<\rho_j>$-absolutely monotone functions. (Russian. Armenian and English summaries) (51 #3378)

**Samar, M. S.** A relation between Laplace transform and integral equation involving the $H$-function. (Hindi. English summary) (51 #11035)

**Shah, Manilal** On applications of inversion theorems of Laplace and Mellin transforms associated with Fox's $H$-functions of two variables. (51 #3572)

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**Shrivastava, Prakash Narain** Inversion of an integral involving Bessel polynomials. **55** #3692

**Singh, Bhagat** *See* **Dahiya, R. S., 45** #7400 *and* **Dahiya, R. S., 48** #6832

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**Weiss, Mary** *See* **Calderón, Alberto P.; et al.**, **49** #3473 (E **49** #3474) ; **Calderón Alberto P.; et al.**, **49** #3474 (E **49** #3475) *and* **Calderón, Alberto P.; et al.**, **49** #3475

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**Andersen, Kenneth F.** Inequalities with weights for discrete Hilbert transforms. (**56** #9172)

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**Calderón, Alberto P.** Estimates for singular integral operators in terms of maximal functions. (**50** #1053)
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**Carton-Lebrun, C.** Product properties of Hilbert transforms. (**56** #9173)
**Coifman, Ronald R.** (*with* Fefferman, Charles L.) Weighted norm inequalities for maximal functions and singular integrals. (**50** #10670)
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**Fabes, Eugene B.** (*with* Littman, Walter; Rivière, Néstor M.) Commutators of singular integrals with $C^1$-kernels. (**51** #13772)
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**Fefferman, Charles L.** (*with* Muckenhoupt, Benjamin) Two nonequivalent conditions for weight functions. (**50** #13399)
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**Muhtarov, U. M.** Certain properties of linear singular integral operators with special Cauchy type kernels. (Russian. Azerbaijani summary) (**46** #4281)
**Muradov, B.** (*with* Salaev, V. V.) A new approach to the study of the properties of singular integrals with continuous density along open curves. (Russian. Tajiki summary) (**51** #11201)
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**Rathod, H. T.** Griffith crack in an infinite elastic medium. (**57** #18400)
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**Tu, Shih Tong** Further results on the discrete analytic derivative equation under the prime convolution product. (**49** #606)

**Vasilache, Sergiu** Opérateurs paraboliques dans le calcul opérationnel des distributions à support dans $\mathbf{R}^n_+$, $n > 1$. (English summary) (**47** #3843)

**Wagner, Edwin F.** Convergence structures for Mikusiński operators. (**55** #3784)

**(Žarinov, V. V.)** *See* **Antosik, Piotr; et al.**, (**54** #924)

**Zemanian, A. H.** *See* **Koh, Eusebio L.**, (See Zbl **167**, 415)

**Investigations on linear operators and the theory of functions** ★Исследования по линейным операторам и теории функций. III. (Russian) [Investigations on linear operators and the theory of functions. III] (**48** #8758)

**Linear operators** *See* **Investigations on linear operators and the theory of functions**, (**48** #8758)

**Theory of functions** *See* **Investigations on linear operators and the theory of functions**, (**48** #8758)

## 44A45 Classical operational calculus

**Al-Salam, Waleed A.** (*with* Ismail, Mourad El-Houssieny) Some operational formulas. **52** #8821

**Aprile, Giuseppe** (*with* Raimondi, Tommaso) Sulla derivazione ad indice complesso. **58** #2066

**Berg, Lothar** Generalizations of Taylor's formula. **57** #7058

**Breneva, R. M.** (*with* Šelkovnikov, F. A.) A connection between the $n$-dimensional Laplace transform and the Ditkin-Botašev operational calculus. (Russian) **46** #5957

**Carlitz, Leonard** A theorem on differential operators. **55** #3695

**Dimovski, Ivan Hr.** On a Bessel-type integral transformation, due to N. Obrechkoff. **48** #11945
A transform approach to operational calculus for the general Bessel-type differential operator. **50** #907
Two new convolutions for linear right-inverse operators of $d^2/dt^2$. **53** #8813

**Fraile Ovejero, Vicente** Valued functions. I. (Spanish) **54** #5754

**(Heaviside, Oliver)** *See* **Moore, Douglas H.**, **57** #3759

**Ismail, Mourad El-Houssieny** *See* **Al-Salam, Waleed A.**, **52** #8821

**Jain, M. K.** On certain integral operational formulae. I. **51** #3812

**Khan, Mumtaz Ahmad** An algebraic study of certain $q$-fractional integrals and $q$-derivatives. **53** #3609

**Koh, Eusebio L.** Application of an operational calculus to certain time-varying systems. **58** #6955

**Krabbe, Gregers L.** The periodic part of the response to a periodic excitation. **53** #3610
An extension of Duhamel's integral to differential equations involving generalized functions; the steady-state solution. **54** #13491

**Kuhrt, R.** Über Sprungfunktionen unter dem Aspekt praktischer Anwendung. (Russian, English and French summaries) **55** #998

**Moore, Douglas H.** ★Heaviside operational calculus. **57** #3759

**Osler, Thomas J.** Leibniz rule for fractional derivatives used to generalize formulas of Walker and Cauchy. (Romanian summary) **52** #8822

**Pathak, Ram Shankar** On operational calculus. **47** #9194

**Preuss, Wolfgang** Remark to the embedding of an operational calculus based on the $\mathfrak{L}^{(\vartheta)}$-transformation in a field of transformable operators. **58** #23388

**Raimondi, Tommaso** *See* **Aprile, Giuseppe**, **58** #2066

**Šelkovnikov, F. A.** *See* **Breneva, R. M.**, **46** #5957

**Serbin, Hyman** The operational calculus of Heaviside. **48** #11946

**Sharma, Bhagirath Lal** On operational calculus. **58** #2067
Two theorems in operational calculus. **58** #2068

**Shultz, Harris S.** Linear operators and operational calculus. II. (See Zbl **237** #44006)

**Skendžić, Marija** Integral representation of functions of significance for the operational calculus. (Serbo-Croatian. English summary) **49** #7711

**Tavathia, B. S.** Certain theorems in operational calculus involving integrals containing hyperbolic functions. **46** #4120

**Tocaci, Emil** The quasi-Dirac function and its use in mechanics. (Romanian) **52** #11502

**(Whittaker, Edmund T.)** *See* **Moore, Douglas H.**, **57** #3759

Secondary classifications:

**Bahar, E.** The indefinite $Z$-transform technique and application to analysis of differenc equations. (**52** #1074)

**Bakievič, N. I.** The Fourier transform of generalized functions of certain classes, an operational calculus on the basis of the two-sided Laplace transform. (Russian (**58** #2248)

**Berg, Lothar** Randwertprobleme in der Operatorenrechnung. (Russian, English an French summaries) (**53** #3739)

**Bittner, Leonhard** Linear equations with an operator polynomial on the left side (German and Russian summaries) (**49** #10710)

**Černov, V. M.** Operational equations of limit type. (Russian) (**58** #29871)

**Comtet, Louis** Une formule explicite pour les puissances successives de l'opérateur de dérivation de Lie. (**47** #6503)

**Dahiya, R. S.** Operational calculus and self-reciprocal functions. (**53** #1181)

**Èšukov, L. N.** Functional and boundary value problems that admit an operational calculus. (Russian) (**53** #13780)

**Jentsch, Werner** Über eine Erweiterung der zweidimensionalen diskreten Operatorenrechnung. (**56** #906)

**Karande, B. K.** *See* **Thakare, Nimbakrishna**, (**48** #8900)

**Katunina, E. N.** Solution of linear functional problems by the operational method. (Russian) (**58** #22915)

**Malahovskaja, R. M.** Application of the operational method in generalized functions to the study of boundary value problems. (Russian) (**54** #8000)

**Thakare, Nimbakrishna** (*with* Karande, B. K.) Remarks on the operational formulas for orthogonal polynomials. (**48** #8900)

## 44A50 Moment problems [See also 42A80.]

**Alterovitz, S.** (*with* Gershenson, M.) A moments method applied to Laplace transform technique for experimental physics. **54** #3316

**Balins'kiĭ, A. Ī.** (*with* Zoriĭ, L. M.) On the solution of the problem of "weighted moments". (Russian) **58** #6956

**Birkholc, Andrzej** Remarks on a moment problem and a problem of perfection of power methods of limitation. **46** #5958

**Bruschi, Massimo** Sul teorema di Lerch per intervalli infiniti. (English summary) **56** #6300

**Butzer, Paul L.** (*with* Oberdörster, W.) ★Darstellungssätze für beschränkte lineare Funktionale im Zusammenhang mit Hausdorff-, Stieltjes- und Hamburger-Momentenproblemen. **57** #13402

**(Čebyšev, P. L.)** *See* **Kreĭn, M. G.; et al.**, **56** #3588 *and* **Kreĭn, M. G.; et al.**, **56** #16284

**Courtade-Coulomb, Geneviève** Décomposition des moments de Stieltjes. (English summary) **54** #10998

**Èĭdlin, V. L.** Prescribing the distribution of a polynomial by its moments. (Russian) **45** #5676

**Gershenson, M.** *See* **Alterovitz, S.**, **54** #3316

**Ghizzetti, Aldo** Sul teorema de Lerch per l'intervallo $[0,+\infty)$. (English summary) **58** #2069

**Gil de Lamadrid, Jesús** Determinacy theory for the Livšic moments problem. **55** #10975

**Horn, Roger A.** On the moments of complex measures. **58** #23389

**Il'muškin, G. M.** The truncated operator power moment problem of Hamburger. (Russian) **58** #29884

**Ivanov, V. K.** (*with* Mel'nikova, I. V.) On finding the density of the distribution from a finite number of moments. (Russian) **45** #4075
(*with* Mel'nikova, I. V.) The problem of finding the density of mass distributions from a finite number of prescribed moments inside a disc and a ball. (Russian) **48** #809

**Jacun, V. A.** On a generalized moment problem. **51** #6306
A certain property of the sequence of moments. (Russian) **50** #5388

**Jakimovski, Amnon** (*with* Russell, Dennis C.) On the Hausdorff moment problem. **58** #23390

**Johnson, Gordon G.** Moment sequences in Hilbert space. **48** #2689

**Kemperman, J. H. B.** Moment problems with convexity conditions. I. **50** #2828

**Kreĭn, M. G.** (*with* Nudel'man, A. A.) ★Проблема моментов Маркова и экстремальные задачи. (Russian) [The Markov moment problems, and extremal problems] **56** #3588
(*with* Langer, Heinz) The indefinite power moment problem. (Russian) **58** #29885
(*with* Nudel'man, A. A.) ★The Markov moment problem and extremal problems. **56** #16284

**Kuz'menkov, V. A.** A finite moment problem for several variables. (Russian. English summary) **53** #14042

**Langer, Heinz** *See* **Kreĭn, M. G.**, **58** #29885

**Law, Alan G.** Orthogonal recurrence polynomials and Hamburger moments. **45** #829

**(Louvish, David)** *See* **Kreĭn, M. G.; et al.**, **56** #16284

**Luks, L. N.** Solution of the matrix truncated power moment problem on an interval and a half-line. (Russian) **58** #29886

**Mäki, Daniel P.** Some special cases of describing distribution functions by moments. **50** #14094

**(Markov, A. A.)** *See* **Kreĭn, M. G.; et al.**, **56** #3588 *and* **Kreĭn, M. G.; et al.**, **56** #16284

**Maserick, P. H.** Moments of measures on convex bodies. **54** #872
Moments of measures on convex bodies. **56** #12786

**Mel'nikova, I. V.** *See* **Ivanov, V. K.**, **45** #4075 *and* **Ivanov, V. K.**, **48** #809

**Merkes, E. P.** (*with* Wetzel, Marion) A geometric characterization of indeterminate moment sequences. **54** #10999
(*with* Wetzel, Marion) On geometric characterizations of an indeterminate Stieltjes moment sequence. **57** #13403

**Morelli, Andreina** Alcune osservazioni sul teorema di Lerch nel caso di intervalli infiniti. (English summary) **53** #1192

**Nakonečniĭ, O. G.** Higher order moments. (Russian) **46** #4121

The restricted multidimensional problem of moments. (Russian) **57** #7059

Some properties of moment sequences. (Russian) **58** #12233a

On the question of the truncated multidimensional moment problem. (Russian) **58** #12233b

**Nillsen, Rodney** Moment sequences obtained from restricted powers. **58** #12234

**Nudel′man, A. A.** A new problem of the type of the moment problem. (Russian) 57 #10379

*See also* **Kreĭn, M. G., 56** #3588 *and* **Kreĭn, M. G., 56** #16284

**Oberdörster, W.** *See* **Butzer, Paul L., 57** #13402

**Ovakimjan, A. S.** The generalized Stieltjes moment problem for the class $L_p(\varphi)$. (Russian. Armenian summary) **58** #23391

**Rogosinski, H. P.** Positive-moment problems in abstract measure spaces. **55** #3696

**Russell, Dennis C.** *See* **Jakimovski, Amnon, 58** #23390

**Schroeter, Günter** A remark on the Hausdorff moment problem. **55** #10976

**Simar, Léopold** A note on Stieltjes moment sequences. **55** #3697

**Solov′ev, A. F.** On I. P. Natanson's theorem on moment sequences. (Russian) (See RŽMat **1972** #5 B105)

**Trautner, Rolf** Density properties of Hausdorff moment sequences. **49** #9558

**Wallen, Lawrence J.** Constructing functions with zero moments. **58** #6957

**Wetzel, Marion** *See* **Merkes, E. P., 54** #10999 *and* **Merkes, E. P., 57** #13403

**Zoriĭ, L. M.** *See* **Balīns′kiĭ, A. Ī., 58** #6956

Secondary classifications:

**Bagijan, R. A.** Quasipolynomials of Bernšteĭn-Hausdorff type that are associated with functions of Mittag-Leffler type, and the $<\rho,\mu>$ moment problem. (Russian. Armenian summary) (**54** #805)

**Berezans′kiĭ, Ju. M.** (*with* Šifrin, S. N.) A generalized symmetric power moment problem. (Russian) (**45** #9178)

**(Bognár, János)** *See* **Kreĭn, M. G.; et al.**, (**57** #10481)

**Chihara, T. S.** Convergent sequences of orthogonal polynomials. (**46** #7787)

**Cotlar, Mischa** (*with* Sadosky, Cora) Transformée de Hilbert, théorème de Bochner et le problème des moments. (English summary) (**57** #7012)

**Davis, Philip J.** Plane regions determined by complex moments. (**55** #668)

**Edigarjan, V. M.** On the generalized Stieltjes moment problem. (Russian. Armenian summary) (**45** #7460)

**Edwards, J. R.** (*with* Wayment, Stanley G.) On the nonequivalence of conservative Hausdorff methods and Hausdorff moment sequences. (**46** #4054)

**Hunter, J. Bockett** Moment sequences in $l^p$. (**52** #8877)

**Il′muškin, G. M.** A truncated operator power problem of moments. (Russian) (**58** #2453)

**Kaz′min, Ju. A.** On the moment problem in the complex domain. (Russian) (**46** #5633)

**Kemperman, J. H. B.** On a class of moment problems. (**55** #4336)

**Kočubeĭ, A. N.** The extreme points of the set of solutions of the truncated matrix moment problem. (Ukrainian. English and Russian summaries) (**47** #4021)

**Kranoselskiĭ, M. A.** *See* **Kreĭn, M. G.**, (**57** #10481)

**Kreĭn, M. G.** (*with* Kranoselskiĭ, M. A.) Fundamental theorems on the extension of Hermitian operators and certain of their applications to the theory of orthogonal polynomials and the problem of moments. (Hungarian) (**57** #10481)

**Langer, Robert W.** More determinacy theory for the Livšic moments problem. (**55** #3859)

**Lenard, Andrew** Uniqueness criterion for a moment problem. (**50** #11374)

**Luks, L. N.** Application of spectral theory to the truncated power moment problem. (Russian) (**57** #7235)

**Maserick, P. H.** Moment and BV-functions on commutative semigroups. (**53** #695)

BV-functions, positive-definite functions and moment problems. (**52** #1172)

**Nakonečniĭ, O. G.** Moment functions of random processes. (Russian. English summary) (**53** #14592)

**Narcowich, Francis J.** An imbedding theorem for indeterminate Hermitian moment sequences. (**56** #1126)

*R*-operators. II. On the approximation of certain operator-valued analytic functions and the Hermitian moment problem. (**56** #15943)

**Sadosky, Cora** The problem of moments and the Hilbert transform. (Spanish. English summary) (**58** #2050)

*See also* **Cotlar, Mischa**, (**57** #7012)

**Sánchez-Dehesa, Jesus** The asymptotical spectrum of Jacobi matrices. (**57** #11021)

**Schumacher, Martin** ★Über asymptotische Potenzreihen in zwei Veränderlichen und ein zweidimensionales Momentenproblem. (**56** #16229)

**Šifrin, S. N.** An infinite-dimensional smooth symmetric power problem of moments on nuclear spaces. (Russian) (**58** #7203)

*See also* **Berezans′kiĭ, Ju. M.**, (**45** #9178)

**Veech, William A.** The tail of a positivity-preserving semigroup. (**51** #6293)

**Wayment, Stanley G.** *See* **Edwards, J. R.**, (**46** #4054)

**Whitford, Anthony K.** Moment sequences in locally convex spaces. (**52** #3469)

**Wynn, Peter** Über orthonormale Polynome und ein assoziiertes Momentenproblem. (**46** #7520)

### 44A99 Miscellaneous topics

**Mihalīn, G. O.** Ineffective linear integral transformations that preserve convergence. (Russian) **53** #1193

## 5–XX INTEGRAL EQUATIONS

Secondary classifications:

**Kakičev, V. A.** A two-dimensional boundary value problem of the type of the Riemann problem that contains integrodifferential operators. (Russian. Armenian and English summaries) (**56** #15965)

### 45–01 Elementary exposition (collegiate level)

**(Anderssen, R. S.)** *See* **Zabreĭko, P. P.; et al.**, (See Zbl **293** #45001)

**Chambers, Ll. G.** ★Integral equations: a short course. **55** #10977

**Cochran, James Alan** ★The analysis of linear integral equations. **56** #6301

**(Jankovskiĭ, G.)** *See* **Krasnov, M. L.; et al., 50** #5389 *and* **Petrovskiĭ, I. G., 50** #5391

**Kanwal, Ram P.** ★Linear integral equations. (See Zbl **219** #45001)

**Kiselev, A. I.** *See* **Krasnov, M. L.; et al., 50** #5389 *and* **Krasnov, M. L.; et al., 58** #29887

**Koševlev, A. I.** *See* **Zabreĭko, P. P.; et al.**, (See RŽMat **1968** #10 B382) *and* **Zabreĭko, P. P.; et al.**, (See Zbl **293** #45001)

**Krasnosel′skiĭ, M. A.** *See* **Zabreĭko, P. P.; et al.**, (See RŽMat **1968** #10 B382) *and* **Zabreĭko, P. P.; et al.**, (See Zbl **293** #45001)

**Krasnov, M. L.** (*with* Kiselev, A. I.; Makarenko, G. I.) ★Problems and exercises in integral equations. **50** #5389

★Интегральные уравнения. (Russian) [Integral equations] **58** #23392

(*with* Kiselev, A. I.; Makarenko, G. I.) ★Интегральные уравнения. (Russian) [Integral equations] **58** #29887

**Makarenko, G. I.** *See* **Krasnov, M. L.; et al., 50** #5389 *and* **Krasnov, M. L.; et al., 58** #29887

**Mihlin, S. G.** *See* **Zabreĭko, P. P.; et al.**, (See RŽMat **1968** #10 B382) *and* **Zabreĭko, P. P.; et al.**, (See Zbl **293** #45001)

**Moiseiwitsch, Benjamin Lawrence** ★Integral equations. **56** #16285

**Mushelišvili, N. I.** ★Singular integral equations. **55** #10978

**Petrovskiĭ, I. G.** ★Лекции по теории интегральных уравнений. (Russian) [Lectures on the theory of integral equations] **50** #5390

★Lectures on the theory of integral equations. **50** #5391

★Lecciones de teoria de las ecuaciones integrales. (Spanish) [Lectures on the theory of integral equations] **55** #6139

**(Radok, J. R. M.)** *See* **Mushelišvili, N. I., 55** #10978

**Rakovščik, L. S.** *See* **Zabreĭko, P. P.; et al.**, (See RŽMat **1968** #10 B382) *and* **Zabreĭko, P. P.; et al.**, (See Zbl **293** #45001)

**(Šapošnikova, T. O.)** *See* **Zabreĭko, P. P.; et al.**, (See Zbl **293** #45001)

**Stecenko, V. Ja.** *See* **Zabreĭko, P. P.; et al.**, (See RŽMat **1968** #10 B382) *and* **Zabreĭko, P. P.; et al.**, (See Zbl **293** #45001)

**(Tolosa, Juan José)** *See* **Petrovskiĭ, I. G., 55** #6139

**Ursell, F.** Introduction to the theory of linear integral equations. **58** #2070

**Zabreĭko, P. P.** (*with* Koševlev, A. I.; Krasnosel′skiĭ, M. A.; Mihlin, S. G.; Rakovščik, L. S.; Stecenko, V. Ja.) ★Интегральные уравнения. (Russian) [Integral equations] (See RŽMat **1968** #10 B382)

(*with* Koševlev, A. I.; Krasnosel′skiĭ, M. A.; Mihlin, S. G.; Rakovščik, L. S.; Stecenko, V. Ja.) ★Integral equations—a reference text. (See Zbl **293** #45001)

Secondary classifications:

**Corduneanu, Constantin** ★Principles of differential and integral equations. (**55** #12977)

**Èl′sgol′c, L. È.** ★Differential equations and the calculus of variations. (**49** #9291)

**Ionescu, Dumitru V.** ★Ecuaţii diferenţiale şi integrale. (Romanian) [Differential and integral equations] (**50** #13680)

**(Jankovskiĭ, G.)** *See* **Èl′sgol′c, L. È.**, (**49** #9291)

### 45–02 Advanced exposition (research surveys, etc.)

**Aširov, S. A.** *See* **Mamedov, Ja. D., 58** #23393

**Bôcher, Maxime** ★An introduction to the study of integral equations. **50** #2829

**Buschman, Robert G.** *See* **Srivastava, Hari M., 58** #29888

**Corduneanu, Constantin** ★Integral equations and stability of feedback systems. **50** #10710

**Hioe, F. T.** On the use of determinants and their expansions for various physical problems. **58** #6958

**Hochstadt, Harry** ★Integral equations. **52** #11503

**Jörgens, Konrad** ★Lineare Integraloperatoren. **57** #1036

**Kagiwada, Harriet H.** (*with* Kalaba, Robert E.) ★Integral equations via imbedding methods. **57** #3760

**Kalaba, Robert E.** *See* **Kagiwada, Harriet H., 57** #3760

**Mamedov, Ja. D.** (*with* Aširov, S. A.) ★Нелинейные уравнения Вольтерра. (Russian) [Nonlinear Volterra equations] **58** #23393

**Miller, Richard K.** ★Nonlinear Volterra integral equations. **58** #23394

**Smirnov, V. I.** ★Курс высшей математики. Том IV. Часть 1. (Russian) [A course in higher mathematics. Vol. IV. Part 1] **50** #14095

**Srivastava, Hari M.** (*with* Buschman, Robert G.) ★Convolution integral equations with special function equations. **58** #29888

**Ufljand, Ja. S.** ★Метод парных уравнений в задачах математической физики. (Russian) [The method of dual equations in problems of mathematical physics] **58** #17704

Secondary classifications:

**(Berg, Christa)** *See* **Smirnov, V. I.**, (**50** #5147)

**(Berg, Lothar)** *See* **Smirnov, V. I.**, (**50** #5147)

**(Colombo, Serge)** *See* **Yosida, Kôsaku**, (**49** #9296)

**Sell, George R.** Topological dynamical techniques for differential and integral equations. (**54** #7919)

**Smirnov, V. I.** ★Lehrgang der höheren Mathematik. Teil IV. (**50** #5147)

**Yosida, Kôsaku** ★Équations différentielles et intégrales. (**49** #9296)

**Zeidler, Eberhard** ★Vorlesungen über nichtlineare Funktionalanalysis. II. Monotone Operatoren. (**57** #13586)

## 45-03 Historical

**Lonseth, Arvid T.** Sources and applications of integral equations. **55** #8711

**Rall, L. B.** The Fredholm pseudoinverse—an analytic episode in the history of generalized inverses. **58** #12235

Secondary classifications:

**(Deheuvels, Paul)** *See* **Oeuvres: Lévy, Paul,** (**58** #27164a)

**Dobrovol′s′kiĭ, V. O.** From the history of the Riemann problem. (Russian) (**58** #21254)

**Dorofeeva, A. V.** The development of the theory of integral equations up to the works of Hilbert. (Russian) (**58** #21202)

**(Dugué, Daniel)** *See* **Oeuvres: Lévy, Paul,** (**58** #27164a)

**(Ibéro, Michel)** *See* **Oeuvres: Lévy, Paul,** (**58** #27164a)

**(Lévy, Paul)** *See* **Oeuvres: Lévy, Paul,** (**58** #27164a)

**Oeuvres:**

**Lévy, Paul** ★Oeuvres de Paul Lévy. Vol. I. (**58** #27164a)

## 45-06 Collections of papers; proceedings of conferences

**(Imanaliev, M. I.)** *See* **Studies in integro-differential equations in Kirgizia,** **57** #7060

**Integral equations** *See* **Special issue: Numerical methods for solving integral equations,** **57** #13404

**Integro-differential equations** *See* **Studies in integro-differential equations in Kirgizia,** **48** #810; **Studies in integro-differential equations in Kirgizia,** **50** #10711; **Studies in integro-differential equations in Kirgizia,** **50** #14096 *and* **Studies in integro-differential equations in Kirgizia,** **57** #7060

**Numerical methods** *See* **Special issue: Numerical methods for solving integral equations,** **57** #13404

**Special issue:**

**Numerical methods for solving integral equations** ★{Issue devoted to numerical methods for solving integral equations}. **57** #13404

**Studies in integro-differential equations in Kirgizia** ★Исследования по интегро-дифференциальным уравнениям в Киргизии. Вып. 8. (Russian) [Studies in integro-differential equations in Kirgizia. No. 8] **50** #14096

★Исследования по интегро-дифференциальным уравнениям в Киргизии. Вып. 9. (Russian) [Studies in integro-differential equations in Kirgizia. No. 9] **48** #810

★Исследования по интегро-дифференциальным уравнениям в Киргизии. Вып. 10. (Russian) [Studies in integro-differential equations in Kirgizia. No. 10] **50** #10711

★Исследования по интегро-дифференциальным уравнениям в Киргизии. (Russian) [Studies in integro-differential equations in Kirgizia] **57** #7060

Secondary classifications:

**(Gagaev, B. M.)** *See* **Orthogonal polynomial expansion,** (**58** #29733)

**(Gilbert, Robert Pertsch)** *See* **Function theoretic methods in differential equations,** (**57** #593)

**(Lakshmikantham, V.)** *See* **Nonlinear equations in abstract spaces,** (**57** #18014)

**(Langer, Rudolph E.)** *See* **Advances in differential and integral equations,** (**50** #10389)

**(Mushelišvili, N. I.)** *See* **Function theoretic methods in differential equations,** (**57** #593)

**(Nohel, John A.)** *See* **Studies in applied mathematics,** (Not reviewed) *and* **Advances in differential and integral equations,** (**50** #10389)

**(Vasil′ev, O. V.)** *See* **Differential and integral equations,** (**56** #8938)

**(Vasil′ev, V. V.)** *See* **Differential and integral equations,** (**56** #8938)

**(Weinacht, Richard J.)** *See* **Function theoretic methods in differential equations,** (**57** #593)

**Advances in differential and integral equations** ★Advances in differential and integral equations. (**50** #10389)

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**Dīdenko, V. P.** (*with* Kozlov, N. N.) The regularization of certain ill-posed problems of technical cybernetics. (Russian) (49 #5940)

**Gaier, Dieter** Integralgleichungen erster Art und konforme Abbildung. (**53** #786)

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**Martin, Robert H., Jr.** Product intergral approximations of solutions to linear operator equations. (**52** #1363)

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**Henery, R. J.** Solution of Fredholm equations with symmetric difference kernels. (**55** #13839)

**Houstis, Elias** (*with* Papatheodorou, T. S.) A collocation method for Fredholm integral equations of the second kind. (**56** #17166)

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**Kagiwada, Harriet H.** (*with* Kalaba, Robert E.) Imbedding methods for integral equations with applications. (**58** #8403)

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**Petunīn, Ju. Ī.** (*with* Alekseevskaja, T. V.) A study of the depolarization of a post-synaptic membrane that is conditioned by flows and nerve impulses. (Russian. English summary) (**58** #20572)

**Prößdorf, Siegfried** A singular integral equation with a symbol that vanishes at a finite number of points. (Russian) (**48** #2835)

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**Singh, Sheo Ram** (*with* Zerner, M. C.) The collocation variational method for solving Fredholm integral equations and an application to potential scattering. (**57** #4549)

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**Sloan, Ian H.** Convergence of degenerate-kernel methods. (**56** #10079)

**Solodovnikov, V. V.** (*with* Filimonov, A. B.; Filimonov, N. B.) Reducing linear integrodifferential equations to Fredholm integral equations of the second kind in optimal synthesis problems. (**58** #6993)

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**Atdaev, S.** On the theory of the solutions of nonlinear multidimensional Volterra operator equations. (Russian. English summary) (**57** #3925)
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**McDermott, Terrence S.** Successive approximations in ordered vector spaces and global solutions of nonlinear Volterra integral equations. (**45** #997)
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**Nakagiri, Shin'ichi** Generalized dynamical systems and Volterra integral equations. (**58** #7578)
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**Pachpatte, B. G.** On preserving stability of Volterra integral equations. (**57** #7081)
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**Reichert, Marianne** Über die Fixpunktmengen einer Klasse Volterrascher Integraloperatoren in Banachräumen. (**46** #9818)
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**Rogers, Thomas D.** A functional integral inequality and bounds for nonlinear differential equations. (Russian summary) (**49** #5469)
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**el-Tom, M. E. A.** On spline function approximations to the solution of Volterra integral equations of the first kind. (**53** #7086)
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**Ibragimov, I. I.** (*with* Gadžiev, A. D.) The rate of convergence of singular integrals of I. I. Privalov type in the complex domain. (Russian) (**58** #1171)
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**Īvanov, V. V.** ★Теория приближенных методов и ее применение к численному решению сингулярных интегральных уравнений. (Russian) [Theory of approximate methods and its application to the numerical solution of singular integral equations] (**53** #8840)
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**Komjak, I. I.** Noethericity conditions and index of a spatial analogue of the general singular operator with Cauchy kernel. (Russian) (**57** #7261)
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**Abdullaev, A. K.** Certain estimates of a singular integral and their applications to the study of nonlinear singular integral equations in the case of an open contour. (Russian. Azerbaijani and English summaries) **45** #4085

**Abdullaeva, G. G.** (*with* Musaev, B. I.) Regularization of singular integral over an open contour. (Russian. Azerbaijani and English summaries) **57** #7065

**Arseni, V. F.** (*with* Evseev, E. G.; Sosunov, A. S.) An application of the theory of approximate methods to the study of a singular integral equation with shift that is not subject to the generalized Carleman condition. (Russian. Georgian summary) **51** #1308

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**Heinig, George** Über die Invertierung und das Spektrum von singulären Integraloperatoren mit Matrixkoeffizienten. **56** #9201

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**Karapetjanc, N. K.** (*with* Samko, S. G.) Singular integral operators with shift on an op contour. (Russian) **46** #7814

(*with* Samko, S. G.) Singular integral operators with Carleman shift in the case piecewise continuous coefficients. I, II. (Russian) **53** #3616

A certain class of convolution type equations with shift. (Russian. Georgian a English summaries) **57** #10385

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**Kazidžanova, D.** A two-dimensional singular integral equation of the first kind over bounded domain. (Russian. Tajiki summary) **57** #7066

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**Komjak, I. I.** Two-dimensional systems of singular integral equations. (Russian) **54** #5755

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**Kravčenko, V. G.** (*with* Litvinčuk, G. S.) Singular integral equations with non-Carlem shift, and their application to the theory of boundary value problems for different equations of mixed type. (Russian) **54** #13496

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**Latypov, K. Š.** (*with* Tadžibaev, A.) A singular integral equation. (Russian) **58** #177

**Leksiński, Wacław** (*with* Żakowski, Wojciech) Investigation of a certain system singular integral equations of arbitrary power. **51** #13598

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**Lifanov, I. K.** Singular integral equations with one-dimensional and multiple integrals Cauchy type. (Russian) **58** #6973

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**Makarova, E. L.** Application of the principle of contraction mappings to the solution an integral equation with Cauchy type kernel. (Russian) (See RŽMat **1976** # B347; MR **58** #28740)

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**Meyer, Sybille** Über eine Klasse singulärer Integralgleichungen, deren Symbol auf einer Menge positiven Maßes entartet. **50** #14108

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**Stocks, D. C.** On certain triple integral equations with trigonometric kernels. **53** #14050

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Corrigendum: "On a dual integral equation with a trigonometric kernel" (Glasgow Math. J. **18** (1977), no. 2, 175–177). **58** #29925

**Thakare, Nimbakrishna** Remarks on dual series equations involving orthogonal polynomials. **48** #2699

Some dual series equations involving Jacobi polynomials. **49** #9562

*See also* **Karande, B. K., 58** #23413

**Tranter, C. J.** (*with* Cooke, J. C.) A Fourier-Neumann series and its application to the reduction of triple cosine series. **49** #9563

On some dual cosine series. **48** #11952

**Trivedi, T. N.** *See* **Dwivedi, A. P., 49** #1035; **Dwivedi, A. P., 50** #912; **Dwivedi, A. P., 50** #2836; **Dwivedi, A. P., 51** #8765; **Dwivedi, A. P., 52** #1211; **Dwivedi, A. P., 54** #5760; **Dwivedi, A. P., 56** #996; **Dwivedi, A. P., 58** #6981 *and* **Banerji, P. K.; et al., 56** #3594

**Tweed, John** Some triple equations involving inverse finite Mellin transforms. **52** #1216

Some dual integral equations involving inverse finite Mellin transforms. **49** #9564

**Virčenko, N. O.** (*with* Maĭstrenko, N. I.) Certain triple integral equations, and their application. (Russian. English summary) **56** #6315

(*with* Makarenko, L. G.) Some triple integral equations with Bessel functions. (Russian) **58** #23416

(*with* Makarenko, L. G.) Certain dual integral equations. (Russian) **53** #8826

**Walton, J. R.** A distributional approach to dual integral equations of Titchmarsh type. **57** #17152

The question of uniqueness for dual integral equations of Titchmarsh type. **57** #3780

Secondary classifications:

**Dwivedi, A. P.** (*with* Singh, V. B.) Quadruple series equations involving series of Jacobi polynomials. (**58** #6397)

**Feinerman, Robert P.** (*with* Kelman, Robert B.) The convergence of least squares

approximations for dual orthogonal series. (**52** #6308a (E **52** #6308b) )
*(with* Kelman, Robert B.) Corrigenda to: "The convergence of least squares approximations for dual orthogonal series" (Glasgow Math. J. **15** (1974), 82–84). (**52** #6308b)
*(with* Kelman, Robert B.) Dual orthogonal series: an abstract approach. (**51** #6459)
*See also* **Kelman, Robert B.**, (**50** #7614)
**Kelman, Robert B.** *(with* Koper, Chester A., Jr.) Least squares approximations for dual trigonometric series. (**48** #7540)
*(with* Feinerman, Robert P.) Dual orthogonal series. (**50** #7614)
A Dirichlet-Jordan theorem for dual trigonometric series. (**53** #1136)
*See also* **Feinerman, Robert P.**, (**51** #6459); **Feinerman, Robert P.**, (**52** #6308a (E **52** #6308b) ) *and* **Feinerman, Robert P.**, (**52** #6308b)
**Koper, Chester A., Jr.** *See* **Kelman, Robert B.**, (**48** #7540)
**Kumar, M.** *(with* Srivastava, R. K.) Some applications of triple integral equations involving inverse Mellin transforms. (**58** #14176)
**Lihtarnikov, L. M.** The spectrum of an integral operator of V. I. Romanovskiĭ type with partial integrals. (Russian) (**58** #30513)
*(with* Spevak, L. V.) The solvability of a linear integral equation of V. I. Romanovskiĭ type with partial integrals. (Russian) (**58** #30514)
**Rathod, H. T.** Griffith crack in an infinite elastic medium. (**57** #18400)
**Singh, Didar** On four-part mixed boundary value problem of elasticity. (**58** #25283)
**Singh, V. B.** *See* **Dwivedi, A. P.**, (**58** #6397)
**Spevak, L. V.** *See* **Lihtarnikov, L. M.**, (**58** #30514)
**Srivastava, R. K.** *See* **Kumar, M.**, (**58** #14176)
**Ufljand, Ja. S.** ★Метод парных уравнений в задачах математической физики. (Russian) [The method of dual equations in problems of mathematical physics] (**58** #17704)

### 45F15 Systems of singular linear integral equations

**Bil'man, B. M.** Systems of multidimensional integral equations with kernels of the type of difference equations in the half-strip. (Russian. Tajiki summary) **53** #8827
**Boglaev, Ju. P.** Singularly perturbed systems of Volterra integral equations with a nonintegrable singularity. (Russian) **53** #8828
**Borzymowski, Andrzej** On an infinite system of singular integral equations. (Russian summary) **52** #14880
**Džuraev, A.** Certain systems of two-dimensional singular integral equations with polynomial characteristics in a bounded domain. (Russian. Tajiki summary) **55** #3712
**Kilbas, A. A.** Solution in closed form of a system of complete singular integral equations with analytic kernels. (Russian) **49** #1038
**Rodino, Luigi** Sistemi di equazioni integrali bisingolari. (English summary) **52** #6345
**Tuzik, A. I.** The index and normal solvability of contracted systems of singular integral equations with Cauchy kernel. (Russian) **54** #11006
**Zolotarevskiĭ, V. A.** The convergence of the collocation method for systems of singular integral equations. (Russian) **50** #10725

Secondary classifications:

**Lorenz, Michael** Über ein System mehrdimensionaler singulärer Integralgleichungen nicht normalen Typs. (**50** #10910)
**Prößdorf, Siegfried** Systems of singular integral equations with a vanishing symbol. (Russian) (**47** #5662)

### 45F99 None of the above, but in this section

**Lasota, Andrzej** Équations intégrales au contingent. **48** #9313

Secondary classifications:

**Borzymowski, Andrzej** *(with* Brzeziński, Jan) Concerning a system of singular integral equations. (**58** #17733)
**Brzeziński, Jan** *See* **Borzymowski, Andrzej**, (**58** #17733)

## 45Gxx Nonlinear integral equations [See also 47Hxx.]

Secondary classifications:

**Trenogin, V. A.** *See* **Vaĭnberg, M. M.**, (**49** #9699)
**Vaĭnberg, M. M.** *(with* Trenogin, V. A.) ★Theory of branching of solutions of non-linear equations. (**49** #9699)
**Zabreĭko, P. P.** Nonlinear integral operators. (Russian) (**52** #15120)

### 45G05 Singular nonlinear integral equations

**Abdullaev, A. K.** The study of infinite systems of nonlinear singular integral equations in the case of an open contour. (Russian) **57** #3781
**Aĭmatov, K.** Unique continuation of the solution of a class of nonlinear singular integral equations. (Russian) (See RŽMat **1974** #4 B364)
**Borzymowski, Andrzej** *(with* Brzeziński, Jan) Concerning a system of singular integral equations. **58** #17733
**Browder, Félix E.** Strongly nonlinear integral equations of Hammerstein type. **51** #8766
**Brzeziński, Jan** *See* **Borzymowski, Andrzej**, **58** #17733
**Casti, John** *(with* Kalaba, Robert E.; Ueno, Sueo) A Cauchy system for a class of nonlinear Fredholm integral equations. **53** #11326
**Chandra, Jagdish** *(with* Fleishman, Bernard A.) On the existence and non-uniqueness of solutions of a class of discontinuous Hammerstein equations. **45** #840
**Danilovič, V. P.** A theorem on the existence and uniqueness of the solution of a certain nonlinear singular integral equation. (Ukrainian. English and Russian summaries) **50** #14115
**Faĭzullin, Š. Ja.** Singular solutions of a certain family of nonlinear singular integr equations. (Russian) **52** #6346
Branching of the singular solutions of a certain nonlinear singular integra equation with two parameters. (Russian) **52** #6347
Singular solutions of a certain nonlinear multidimensional singular integral equation with characteristic depending on the pole. (Russian) **55** #3713
*See also* **Misjurkeev, I. V.**, **52** #6348
**Fleishman, Bernard A.** *See* **Chandra, Jagdish**, **45** #840
**Gadžimagomedov, G. G.** An investigation of a certain nonlinear singular integral equation, and a theorem on the uniqueness of the solution. (Russian. Georgian an English summaries) **48** #11953
**Gaziev, A.** An existence theorem for a certain nonlinear singular integral equation with Cauchy-Stieltjes integral. (Russian) **45** #7412
**Guseĭnov, A. I.** *(with* Muhtarov, H. Š.) Certain results for nonlinear singular integra equations in the case of an open contour. (Russian. Azerbaijani summary) **46** #237
**Hamidov, A. A.** *See* **Muhitdinov, N.; et al.**, **52** #11509
**Kalaba, Robert E.** *See* **Casti, John; et al.**, **53** #11326
**Kosel, U.** *(with* Wiener, Klaus) Zu Verzweigungen von Lösungen nichtlinearer Integrodifferentialgleichungen mit Hadamard-Integralen. **50** #913
Über Verzweigungen der Lösungen nichtlinearer Integrodifferentialgleichunge mit Hadamard-Integralen. **55** #13189
**Leggett, Richard W.** On certain nonlinear integral equations. **55** #1009
**Logunov, A. I.** *(with* Logunov, V. I.) The convergence of the method of successive approximations for nonlinear integral equations with retarded argument. (Russian **58** #2084
**Logunov, V. I.** *See* **Logunov, A. I.**, **58** #2084
**Magomedov, G. M.** Local and global theorems for the existence and uniqueness of solutions of nonlinear singular integral equations on a countable set of contours (Russian) **48** #6850
The method of monotonicity in the theory of nonlinear singular integral and integro-differential equations. (Russian) **56** #12793
**Meis, Theodor** Eine spezielle Integralgleichung erster Art. **58** #6982
**Misjurkeev, I. V.** *(with* Faĭzullin, Š. Ja.) The singular solutions of a certain nonlinear multidimensional singular integral equation. (Russian) **52** #6348
**Muhitdinov, N.** *(with* Hamidov, A. A.; Usmanov, G.) A certain method for the solution of a nonlinear singular integral equation of a special type. (Russian. Uzbek summary) **52** #11509
**Muhtarov, H. Š.** *See* **Guseĭnov, A. I.**, **46** #2371
**Ogandžanjan, V. G.** Existence theorems for nonlinear equations with fixed singularities. (Russian. Armenian summary) **46** #4127
**Omuraliev, A. S.** A class of nonlinear singular integrodifferential equations with a small parameter multiplying the highest derivative. (Russian) (See RŽMat **1974** #9 **B491**)
**Rahmanov, R. R.** A study of the solution of a class of nonlinear equations. (Russian) **58** #23417
**Stuart, Charles A.** Existence theorems for a class of non-linear integral equations. **50** #914
**Ueno, Sueo** *See* **Casti, John; et al.**, **53** #11326
**Usmanov, G.** *See* **Muhitdinov, N.; et al.**, **52** #11509
**Walther, Hans-Otto** Existence of a non-constant periodic solution of a nonlinear autonomous functional differential equation representing the growth of a single species population. **52** #11510
**Wiener, Klaus** *See* **Kosel, U.**, **50** #913
**Zarubin, A. N.** The inversion of a certain system of complete singular integral equations. (Russian) **56** #6316
The regularization of a system of complete singular integral equations. (Russian) **57** #3782

Secondary classifications:

**Baĭnov, Drumi D.** *(with* Miluševa, S. D.) An application of the averaging method to a certain two-point boundary value problem for systems of integro-differential equations of Fredholm type that are not solved for the derivative. (Russian) (**58** #6994)
**Kolosov, A. I.** The transformation of a singular boundary value problem in the half-axis into an integral equation with a discontinuous operator. (Russian) (**45** #7164)
**Kosel, U.** *(with* Wiener, Klaus) Zur Verzweigung der Lösungen von nichtlinearen Integralgleichungen mit Hadamard-Integralen bei einfachen Eigenwerten. (**49** #11164)
**Magomedov, G. M.** A nonlocal implicit function theorem and its application to a nonlinear singular integral equation. (Russian) (**49** #3624)
**Miluševa, S. D.** *See* **Baĭnov, Drumi D.**, (**58** #6994)
**Ogandžanjan, V. G.** Conditions for the complete continuity of integral operators with fixed singularities in the space of continuous functions. (Russian) (**46** #6104)
**Wiener, Klaus** *See* **Kosel, U.**, (**49** #11164)

### 45G99 Other nonlinear integral equations

**Adamczyk, Henryk** *(with* Nawrocki, Jan) On some non-linear system of integral-functional equations. **53** #8829
**Avramescu, Cezar** Sur l'existence des solutions des équations intégrales dans certains espaces fonctionnels. **47** #737
**Babaev, A. M.** The convergence of a certain process for the solution of nonlinear integral equations. (Russian) **58** #2085
**Badalov, F. B.** On the solution of a certain system of nonlinear integral equations. (Russian. Uzbek summary) **48** #816
**Baglaĭ, R. D.** A problem of identifying functions that generate a nonlinear operator. (Russian) **58** #12247
**Baĭnov, Drumi D.** *(with* Miluševa, S. D.) A theorem on the existence and uniqueness of the solution of a certain nonlinear system of integral equations. (Russian. Bulgarian summary) **46** #7817

*See also* **Stojanov, N. V.; et al.**, 46 #7819 *and* **Nikolova, Todorka St.**, 58 #17734

**Beršadskiĭ, S. M.** A method for the solution of a nonlinear integral equation of Hammerstein type. (Russian) (Not reviewed)

**Brauer, Fred** Perturbations of the nonlinear renewal equation. 55 #6148

**Britov, N. A.** Smoothness of the solutions of a nonlinear integral equation. (Russian) 58 #23420

**Brusin, V. A.** A certain class of nonautonomous dynamical systems that are defined by nonlinear integral equations. (Russian. English summary) 46 #2372

**Bushell, P. J.** On a class of Volterra and Fredholm non-linear integral equations. 54 #876

**Coleman, Bernard D.** (*with* Renninger, George H.) Periodic solutions of a nonlinear functional equation describing neural interactions. 53 #8830

(*with* Renninger, George H.) Periodic solutions of certain nonlinear integral equations with a time lag. 53 #8831

**Costley, Charles G.** On a solution of the Hammerstein equation. (Serbo-Croatian summary) 46 #4128

**Danilovič, V. P.** Application of the method of averaging functional corrections to a class of nonlinear singular integral equations. (Ukrainian. Russian summary) 58 #23421

**Das, P. C.** Nonlinear integral equations in a measure space. 48 #4668

**Dubois-Violette, Michel** Méthode formelle de solution d'équations non-linéaires. (English, German and Russian summaries) 58 #23422

**Edelstein, Warren S.** On uniqueness of solutions for nonlinear creep problems in symmetric pressure vessels. 56 #3598

**Ermakov, S. M.** (*with* Pankrat′ev, Ju. D.) A method for the approximate linearization of Ljapunov-Schmidt integral equations. (Russian. English summary) 56 #16293

**Fučík, Svatopluk** (*with* Nečas, Jindřich; Souček, Jiří; Souček, Vladimír) Note to nonlinear spectral theory: application to the nonlinear integral equations of the Lichtenstein type. 49 #5748

**Guo, Da Jun** Eigenvalues of Hammerstein nonlinear integral equations. (Chinese) 58 #29927

**Iskenderov, A. D.** A certain class of nonlinear loaded integral equations. (Russian. Azerbaijani and English summaries) 48 #817

**Ivić, Aleksandar** On a certain integral equation. 48 #11954

**Joshi, Mohan** Existence theorems for Urysohn's integral equation. 51 #6322

**Jumarie, Guy** Conditions de fonctions propres pour l'oscillation et la stabilité d'équations fonctionnelles non-linéaires exprimées par leurs noyaux de Green-Laplace. 46 #2373

Méthode des deux premières fonctions propres pour systèmes non linéaires définis par leurs noyaux de Green-Laplace. 46 #2374

**Kay, Alvin J.** Nonlinear integral equations and product integrals. 53 #3623

**Kikuchi, Norio** (*with* Nakagiri, Shin'ichi) An existence theorem of solutions of non-linear integral equations. 48 #6851

(*with* Nakagiri, Shin'ichi) Kneser's property of solutions of nonlinear integral equations. 49 #9565

**Kinderlehrer, David** Variational inequalities with lower dimensional obstacles. 46 #4129

**Kosel, U.** Über die Anzahl der Verzweigungslösungen der Nullösung Hammersteinscher Integralgleichungen in der Nähe eines zweifachen Eigenwertes. 48 #9314

(*with* Wiener, Klaus) Zu Verzweigungen der Nullösung von nichtlinearen Integralgleichungen mit Hadamard-Integralen bei singulären Bestandteilen. 58 #29929

**Kreĭn, M. G.** Nonlinear integral equations that play a role in the theory of Wiener-Hopf equations. I. (Russian) 58 #29930

**Kr″stev, Rangel St.** A certain integral equation. (Bulgarian. Russian and English summaries) 45 #4082

**Kučerenko, È. I.** Convergence of the Bogoljubov-Galerkin method. (Russian) 55 #13190

**Kutmatov, Š. K.** A study of the branching of the solution of a certain kind of integral equation. 57 #17153

**Lasota, Andrzej** (*with* Szafraniec, Franciszek Hugon) On Hammerstein integral equations. (Italian summary) 56 #9205

**Leggett, Richard W.** (*with* Williams, Lynn R.) An extension of Jentzsch's theorem to nonlinear Hammerstein operators. 56 #9206

**Ljal′kina, G. B.** *See* **Misjurkeev, I. V.**, 50 #14116

**Logunov, A. I.** (*with* Logunov, V. I.) The existence of solutions to a system of nonlinear integral equations with retarded argument. (Russian) 57 #17154

**Logunov, V. I.** *See* **Logunov, A. I.**, 57 #17154

**Londen, Stig-Olof** On the variation of the solutions of a nonlinear integral equation. 54 #8192

**Luca, Nicolaie** Admissibility and perturbation theory of some linear Volterra integral and integrodifferential systems. 58 #6983

The behaviour of solutions of a class of nonlinear integral equations of the Volterra type. (Italian summary) 57 #17155

**Mamatkulov, H.** The existence and uniqueness of the solution of a class of countable systems of nonlinear integral equations. (Russian) (See RŽMat 1974 #4 B365)

**Maravall Casesnoves, Darío** An existence and uniqueness theorem for nonlinear integral equations in $L^p$ spaces. (Spanish) 49 #3478

**Miluševa, S. D.** *See* **Baĭnov, Drumi D.**, 46 #7817 *and* **Stojanov, N. V.; et al.**, 46 #7819

**Miroljubov, A. A.** (*with* Šišina, V. T.) A certain method of solving an integral equation. (Russian) 46 #2375

**Misjurkeev, I. V.** (*with* Ljal′kina, G. B.) An investigation of a certain class of nonlinear integral equations by topological methods. (Russian) 50 #14116

**Murakami, Haruo** *See* **Nakagiri, Shin'ichi**, 56 #999

**Nakagiri, Shin'ichi** (*with* Murakami, Haruo) A global existence theorem of non-linear Volterra-Hammerstein integral equations. 56 #999

*See also* **Kikuchi, Norio**, 48 #6851 *and* **Kikuchi, Norio**, 49 #9565

**Nawrocki, Jan** *See* **Adamczyk, Henryk**, 53 #8829

**Nazarov, Š. M.** Branching equations for a nonlinear integral equation. (Russian) 57 #1040

**Nečas, Jindřich** *See* **Fučík, Svatopluk; et al.**, 49 #5748

**Nikolova, Todorka St.** (*with* Baĭnov, Drumi D.) Existence and uniqueness of the solution of some integral equations of superneutral type. (Russian) 58 #17734

**Nurimov, T.** Investigation of the solution of a two-dimensional nonlinear Volterra integral equation. (Russian. Uzbek summary) 47 #7360

**Nussbaum, Roger D.** Periodic solutions of some nonlinear integral equations. 57 #3783

**Odyniec, Michał** Subharmonic oscillations in a nonlinear nonautonomous system. (Polish. Russian and English summaries) 56 #12794

**Oğuztöreli, Mehmet Namık** On a nonlinear integral equation. (Italian summary) 51 #3825

**Pachpatte, B. G.** Some problems in Volterra integrodifferential equations under a general class of perturbations. 57 #10387

**Padgett, W. J.** On a nonlinear stochastic integral equation of the Hammerstein type. 47 #9199

**Pandit, S. G.** On Stieltjes-Volterra integral equations. 58 #23418

**Pankrat′ev, Ju. D.** *See* **Ermakov, S. M.**, 56 #16293

**Peřinová, Vlasta** On a non-linear integral equation. 47 #738

**Pimbley, George H., Jr.** Superlinear Hammerstein operators and the nonoccurrence of secondary bifurcation. 57 #3784

**Potter, A. J. B.** Existence theorem for a non-linear integral equation. 52 #1217

**Radžabov, N. S.** The solution of certain two-dimensional integral equations with a singular curve. (Russian. Tajiki summary) 45 #4083

**Raghavendra, V.** (*with* Rama Mohana Rao, M.) Integral equation of Volterra type and admissibility theory. 47 #7361

**Ragimhanov, R. K.** On the question of the existence of the solution of an integral equation with a multi-valued right hand side. (Russian) 54 #5762

**Ramalho, Roberto** Existence and uniqueness theorems for a nonlinear integral equation. 53 #6259

**Rama Mohana Rao, M.** (*with* Sree Hari Rao, V.) Nonlinear mixed integral equations involving Lebesgue-Stieltjes integrals. 56 #16294

*See also* **Raghavendra, V.**, 47 #7361

**Ramm, A. G.** A certain class of integral equations. (Russian) 49 #5749

**Renninger, George H.** *See* **Coleman, Bernard D.**, 53 #8830 *and* **Coleman, Bernard D.**, 53 #8831

**Rešetov, N. Ja.** The continuation of the solutions of a certain class of perturbed linear integral equations. (Russian) 45 #5688

The continuation of the solutions of a certain class of nonlinear integral equations. (Russian) 45 #5689

**Rzepecki, Bogdan** On the existence of exactly one solution of integral equations in the space $L^p$ with a mixed norm. 52 #1218

**Schleiff, Martin** *See* **Schubert, Hans**, 58 #23419

**Schneider, K. R.** On a class of nonlinear integral equations of Volterra-Hammerstein type. 58 #2086

**Schubert, Hans** (*with* Schleiff, Martin) Über Verzweigungslösungen einer speziellen nichtlinearen Integralgleichung. 58 #23419

**Sharma, R. R.** Some problems of nonlinear integral equations in measure spaces. 51 #8767

**Sidorov, N. A.** (*with* Zorik, L. V.) The investigation of a certain integral equation with deviating argument. (Russian) 47 #9200

**Šišina, V. T.** *See* **Miroljubov, A. A.**, 46 #2375

**Smith, R. C. T.** An integral equation involving both sine and cosine transforms. 50 #10726

**Solomon, Sender** Sur certaines équations intégrales non-linéaires dans un espace topologique mesuré. (Romanian summary) 46 #7818

Opérateur de Carathéodory sur un espace topologique mesuré. (Italian summary) 48 #9315

**Souček, Jiří** *See* **Fučík, Svatopluk; et al.**, 49 #5748

**Souček, Vladimír** *See* **Fučík, Svatopluk; et al.**, 49 #5748

**Sprekels, Jürgen** Einige Existenz- und Einschliessungssätze für Fixpunkte expandierender Integraloperatoren. (English summary) 57 #13417

**Sree Hari Rao, V.** *See* **Rama Mohana Rao, M.**, 56 #16294

**Stachurska, Barbara** On a nonlinear integral inequality. 48 #6852

**Stojanov, N. V.** (*with* Miluševa, S. D.; Baĭnov, Drumi D.) The existence and uniqueness of the solution of a certain nonlinear system of integral equations. (Russian. Bulgarian and English summaries) 46 #7819

**Stuart, Charles A.** Integral equations with decreasing nonlinearities and applications. 52 #1219

**Szafraniec, Franciszek Hugon** *See* **Lasota, Andrzej**, 56 #9205

**Sznitko, Wanda** Nonlinear Hilbert boundary-problem in the Euclidean space $E_3$. 46 #628

**Szufla, Stanisław** Solutions sets of non-linear integral equations. 49 #9566

**Thieme, Horst R.** The asymptotic behaviour of solutions of nonlinear integral equations. 57 #13418

**Tivončuk, V. I.** The solution in the space $L_2$ of nonlinear integral equations with variable limits. (Russian) 45 #5690

**Vaughn, R. L.** Existence and comparison results for nonlinear Volterra integral equations in a Banach space. 58 #23423

**Vogel, Johannes** Eigenschaften der Lösungsverzweigung bei Hammersteinschen Operatorgleichungen. 56 #6317

**Walter, Hermann K.-G.** Mathematische Modelle für Neuronennetze. 58 #23424

**Wenska, Tom** Imbedding of nonlinear integral equations. 47 #739

**Wiener, Klaus** *See* **Kosel, U.**, 58 #29929

**Wilkowski, Jerzy** On the existence of solutions of the integro-functional equation. 56 #12795

**Williams, Lynn R.** *See* **Leggett, Richard W.**, 56 #9206

**Zabreĭko, P. P.** Schaefer's method in the theory of Hammerstein integral equations. (Russian) 55 #6149

**Zorik, L. V.** The singular solutions of nonlinear loaded integral equations. (Russian) 46 #7820

*See also* Sidorov, N. A., 47 #9200

Secondary classifications:

**Ahmedov, K. T.** *See* **Èfendieva, O. A.; et al.**, (**45** #9227)

**Anton, J.** (*with* Casti, John) The imbedding of positive Hammerstein integral operators on Banach lattices. (**48** #4835)

**Aširov, S. A.** *See* **Mamedov, Ja. D.**, (**58** #23393)

**Berger, Joël** (*with* Robert, Jacques) Strongly nonlinear equations of Hammerstein type. (**55** #8891)

**Bickart, Theordore A.** (*with* Prada, Guillermo) On the boundedness of solutions of a functional equation in the Marcinkiewicz space $\mathfrak{M}_2$. (**45** #4228)

**Brézis, Haïm** (*with* Browder, Félix E.) Nonlinear integral equations and systems of Hammerstein type. (**52** #15144)

(*with* Browder, Félix E.) Existence theorems for nonlinear integral equations of Hammerstein type. (**53** #11441)

**Browder, Félix E.** Nonlinear functional analysis and nonlinear integral equations of Hammerstein and Urysohn type. (**52** #15143)

*See also* **Brézis, Haïm**, (**52** #15144) *and* **Brézis, Haïm**, (**53** #11441)

**Budden, P. J.** (*with* Norbury, John) Sluice-gate problems with gravity. (**55** #7087)

**Bylka, Czesław** (*with* Rzepecki, Bogdan) On a nonlinear Volterra's integral equation. (**56** #12790)

**Čandirov, G. I.** (*with* Mamatkulov, H.) Justification of the quasilinearization method for the solution of a system of nonlinear integral equations. (Russian) (See RŽMat **1974** #4 B366)

**Casti, John** *See* **Anton, J.**, (**48** #4835)

**Cheng, Ing Yih S.** (*with* Kozak, John J.) Application of the theory of Orlicz spaces to statistical mechanics. I. Integral equations. (**45** #8198)

**Christensen, G. S.** *See* **Trott, G. W.**, (**46** #7606)

**Crandall, Michael G.** (*with* Nohel, John A.) An abstract functional differential equation and a related nonlinear Volterra equation. (**57** #17410)

**Cushing, Jim M.** Strongly admissible operators and Banach space solutions of nonlinear equations. (**57** #17411)

**Èfendieva, O. A.** (*with* Ahmedov, K. T.; Jagubov, M. A.) Construction of an approximate solution of an extremal-integral equation of mixed type by the method of averaging functional corrections. (Russian. Azerbaijani summary) (**45** #9227)

**Elenskiĭ, Ju. N.** The existence of nonzero positive solutions of nonlinear integral equations. (Russian) (**45** #7539)

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(*with* Bektenov, A.) On the solution of the Goursat problem for a certain class of integro-partial differential equations with deviating argument. (Russian) (See RŽMat **1974** #9 B488)

Solution of the initial value problem for partial integrodifferential equations by the reduction method. (Russian) **54** #3337

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**Salaudi, D.** *See* **Krivošeĭn, L. E.; et al.**, 50 #2849

**Sarygulov, K. S.** The averaging method for a certain class of integro-partial differential equations with deviating argument of neutral type. (Russian) (See RŽMat **1974** #9 B1206)

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**Skakauskas, V. I.** Existence and uniqueness of the solution of an initial-boundary value problem for the kinetic Bolzmann equation in the spatially inhomogeneous case. (Russian. Lithuanian and English summaries) **58** #6992

**Solodovnikov, V. V.** (*with* Filimonov, A. B.; Filimonov, N. B.) Reducing linear integrodifferential equations to Fredholm integral equations of the second kind in optimal synthesis problems. **58** #6993

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(*with* Džoldošev, O. D.) Stability of the solutions of integro-partial differential equations. (Russian) (See RŽMat **1971** #1 B484)

**Travnickaja, I. V.** *See* **Levitin, R. S.; et al.**, 49 #1040

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**Agoškov, V. I.** Approximate solution of the transport equation in plane-parallel geometry, by a generalized Bubnov-Galerkin method. (Russian) (**58** #32664)

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Theorems on the existence of a solution of the Cauchy problem for Vlasov's system of equations. (Russian) (**58** #23179)

**Babenko, K. I.** (*with* Petrovič, V. Ju.) Rayleigh-Taylor instability. (Russian. English summary) (**58** #19774)

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**Belavkin, V. P.** (*with* Maslov, V. P.) The uniformization method in the theory of nonlinear Hamiltonian systems of Vlasov and Hartree type. (Russian. English summary) (**57** #18344)

**Belleni-Morante, Aldo** (*with* Barone, Enzo) Nonlinear kinetic theory of vehicular traffic. (**50** #6461 (E **53** #2333) )

(*with* Barone, Enzo) Erratum: "Nonlinear kinetic theory of vehicular traffic" (J. Math. Anal. Appl. **47** (1974), 443–457). (**53** #2333)

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**Busoni, Giorgio** (*with* Capasso, Vincenzo; Belleni-Morante, Aldo) Global solution of a nonlinear neutron transport problem with temperature feedback. (**58** #32665)

**Capasso, Vincenzo** *See* **Busoni, Giorgio; et al.**, (**58** #32665)

**Čeremenskiĭ, A. G.** On the theory of boundary value problems for systems with aftereffect. (Russian) (**57** #10169)

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**Davis, Paul L.** Hyperbolic integrodifferential equations. (**50** #5205)

**Domke, H.** Radiation transport with Rayleigh scattering. I. Semi-infinite atmosphere. (**57** #18747a)

Radiation transport with Rayleigh scattering. II. Finite atmosphere. (**57** #18747b)

**Domnic'kiĭ, V. M.** Asymptotic solution for a system of integro-differential equations with retarded argument. (Russian) (**58** #29976)

**Ellis, Richard S.** Chapman-Enskog-Hilbert expansion for a Markovian model of the Boltzmann equation. (**57** #8811)

**Gevorgjan, M. S.** Transport problems in an infinite medium. (Russian) (**58** #25673)

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**Kadob'jans'kiĭ, R. M.** *See* **Kozak, P. P.**, (**58** #13357)

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**Kondrašov, V. I.** Boundary value problems for differential and integro-differential equations in domains with a degenerate contour. (Russian) (**55** #10823)

**Kozak, P. P.** (*with* Kadob'jans'kiĭ, R. M.) A representation of the solution of the characteristic problem for a system of integro-differential equations in the form of a Wiener-type integral. (Russian. English summary) (**58** #13357)

**Kremer, Manfred** Über ein Anfangsrandwertproblem aus der Theorie der Wärmeleitung für Medien mit Gedächtnis. (**53** #3499)

**Kutanov, A.** An application of the method of characteristics to the solution of the Goursat problem for an integrodifferential equation with deviating argument. (Russian) (**53** #12043)

**Lokšin, A. A.** Wave equations with a singular time delay. (Russian) (**58** #8683)

(*with* Rok, V. E.) Fundamental solutions of the wave equation with time delay. (Russian) (**58** #14177)

**MacCamy, Richard C.** A model for one-dimensional, nonlinear viscoelasticity. (**57** #18395)

**Malahovskaja, R. M.** (*with* Šihmanter, E. D.) Certain formulas for the realization of operators, and for their application to the solution of integrodifferential equations. (Russian) (**54** #928)

**Maslov, V. P.** ★Комплексные марковские цепи и континуальный интеграл Фейнмана для нелинейных уравнений. (Russian) [Complex Markov chains and the Feynman path integral for nonlinear equations] (**57** #18574)

Equations of the self-consistent field. (Russian) (**58** #9006)

*See also* **Belavkin, V. P.**, (**57** #18344)

**Mayer, Jacques** The first boundary value problem for a fourth order integrodifferential equation that is degenerate on part of the boundary. (Russian. English summary) (**53** #13899)

**Musuraliev, T.** Approximate solution of a boundary value problem for a nonlinear integro-differential equation of elliptic type by the Newton-Kantorovič quasilinearization method. (Russian) (**57** #14550)

**Nagiev, N. M.** The approximate solution of integrodifferential equations of hyperbolic type. (Russian. English and Azerbaijani summaries) (**50** #6193)

**Nalimov, V. I.** The Cauchy-Poisson problem. (Russian) (**58** #29458)

**Nelson, Paul, Jr.** Subcriticality for submultiplying steady-state neutron diffusion. (**58** #14806)

**Pao, Young Ping** Boltzmann collision operator with inverse-power intermolecular potentials. I, II. (**58** #30519)

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**Rok, V. E.** *See* **Lokšin, A. A.**, (**58** #14177)

**Schol-Cancelier, Claudy** Sur la régularité des solutions faibles du problème of Dirichlet associé à un opérateur intégro-différentiel. (English summary) (**55** #13060)

**Šihmanter, E. D.** *See* **Malahovskaja, R. M.**, (**54** #928)

**Simenog, I. V.** The asymptotic behavior of the solution of a stationary nonlinear Hartree equation. (Russian. English summary) (**57** #18579)

**Stupelis, L.** Solvability of the first boundary value problem in $W_p^2(\Omega)$ for a certain class of integrodifferential equations. (Russian. Lithuanian and English summaries) (**52** #14624)

**Tihonov, A. N.** A uniqueness theorem for a certain partial differential equation of fractional order. (Russian) (**56** #3435)

**Ugowski, Henryk** On a certain non-linear initial-boundary value problem for integro-differential equations of parabolic type. (**49** #905)

**Ukaï, Seiji** Les solutions globales de l'équation de Boltzmann dans l'espace tout entier et dans le demi-espace. (English summary) (**56** #3482)

**Uspenskiĭ, K. I.** A certain generalization of the Riemann-Liouville and Weyl integrals of fractional order. (Ukrainian. Russian summary) (**50** #4854)

**Vasil'eva, A. B.** (*with* Hasanov, A. A.) Some singularly perturbed systems in the critical case. (Russian) (**57** #6687)

**Wang, Chao Chen** A transformation property of the Boltzmann equation. (**57** #18343)

**Wei, Zi Chu** *See* **Yang, Ming Zhu; et al.**, (**58** #4124)

**Yang, Ming Zhu** (*with* Zhu, Guang Tian; Wei, Zi Chu) Spectral properties of the transport operator for a medium with a spherical central cavity. (Chinese) (**58** #4124)

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**Alieva, A. I.** *See* **Mamedov, A. M.**, **54** #5772

**Aširov, R.** Estimates of a singular integral with a fixed singularity along a closed or open curve, and their applications. (Russian) **57** #1048

**Baĭnov, Drumi D.** (*with* Miluševa, S. D.) An application of the averaging method to a certain two-point boundary value problem for systems of integro-differential equations of Fredholm type that are not solved for the derivative. (Russian) **58** #6994

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**Barataliev, K. B.** (*with* Musraliev, T.) A method for the approximate solution of linear integral equations with deviating argument of mixed type. (Russian) (See RŽMat **1970** #12 B926)

**Boglaev, Ju. P.** A boundary layer in solutions of nonlinear regularly perturbed Volterra integral equations. (Russian) **53** #8838

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An iteration method for the approximate solution of singularity perturbed Volterra integral equations. (Russian) **55** #1014

(*with* Ždanov, A. V.; Stel'mah, V. G.) Uniform approximations to the solutions of certain singularly perturbed nonlinear equations. (Russian) **58** #12256

**Boĭkov, Ĭ. V.** (*with* Žečev, Ĭ. I.) The approximate solution of singular integro-differential equations on open contours of integration. (Russian) **58** #29966

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**Džunusbekova, S. S.** Application of Ju. D. Sokolov's method of additive functionals to the approximate solution of nonlinear integro-differential equations. (Russian) **58** #29968

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(*with* Ahmedov, K. T.; Jagubov, M. A.) An application of the method of averaging functional corrections to the solution of a certain class of extremal-integral equations. (Russian. Azerbaijani summary) **45** #7419

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**Hubedžašvili, Š. S.** A method for the approximate solution of singular integral equations in the exceptional case. (Georgian. Russian summary) **50** #14133

**Husseĭn, M. Ī.** The approximation of the solutions of Fredholm integral equations of the second kind in the space $L_p$. (Russian) **49** #1041

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**Kalaba, Robert E.** (*with* Scott, Melvin R.) An initial-value method for integral operators. V. Kernels depending upon a parameter. **58** #6997

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**Kamytov, T.** Approximate solution of a partial integrodifferential equation. (Russian) (See RŽMat **1974** #9 B1208)

**Kisielewicz, Michał** Description of a class of hereditary differential-integral equations with non-converging successive approximations. **58** #6998

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**Lamanova, L. G.** A way of constructing the solution of an integral equation of the first kind. (Russian) **50** #14134

An approximate method for the solution of linear integral equations of the first kind. (Russian) **57** #10396

**Lebed', G. K.** (*with* Torohtiĭ, A. P.) Approximate-iteration methods for the approximate solution of integral equations. (Russian) **58** #29970

**Ljaško, Ī. Ī.** (*with* Dīdenko, V. P.; Garkuša, V. Ī.) Equations of the first kind, and Riccati equations that depend on a parameter. (Russian. English summary) **57** #17171

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**Martynenko, Mih. D.** (*with* Šīpka, Ĭ. G.) The approximate solution of a certain type of nonlinear integrodifferential equations. (Russian) **51** #1311

**Mihlin, S. G.** (*with* Radeva, R. K.) The approximate solution of singular integral equations. (Russian) **50** #14135

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**Miluševa, S. D.** Justifications of the averaging method for a certain class of integrodifferential equations. (Russian) **49** #11177

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**Mironova, A. A.** An existence theorem for the solution of a system of integral equations in a space of measurable functions. (Russian) **58** #23450

**Mironova, V. V.** Approximate solution of a certain system by the method of averaging of functional corrections. (Russian) **58** #7000

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**Musuraliev, T.** Approximate solution of linear integral equations of Fredholm ty (Russian) **58** #2107

**Nakagiri, Shin'ichi** (*with* Murakami, Haruo) Approximate solutions for some non-lin Volterra integral equations. **50** #14137

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**Nutfullina, G. Š.** Estimation of the error of the approximate solution of nonlin integral equations. (Russian) **58** #29975

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**Parezanović, Nedeljko S.** Solution of a Fredholm integral equation by means of differential equations. (Serbo-Croatian. English summary) **55** #6155

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**Porath, Günter** Das Ersatzoperatorenverfahren für lineare Volterrasche Integralgleichungen zweiter Art. **54** #13509

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**Premuda, Francesco** (*with* Trombetti, Tullio) Convergence of a projection method Fourier-transformed integral equations. **53** #3628

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**Radziuk, J.** An integral equation approach to measuring turnover in nonsteady compartmental and distributed systems. **58** #7001

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**Rossov, P. B.** Certain estimates of the error of approximate solutions of nonlin integral equations of Hammerstein type. (Russian. English summary) **48** #9320

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**Sanikidze, D. G.** Approximate solution of singular integral equations in the case closed contours of integration. (Russian. English and Georgian summaries) **45** #5

**Šaroglazov, V. S.** (*with* Vasil'ev, V. V.) A method for the approximate solution o boundary value problem for linear integro-differential equations. (Russian) **58** #29971

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The convergence of a process of constructing higher approximations for integrodifferential equations in standard form that are obtainable on the basis of method of averaging. (Russian. Uzbek summary) **51** #13615

**Sarygulov, K. S.** The application of a certain iterative process to the approxim solution of integro-partial differential equations. (Russian) (See RŽMat **1974** B874)

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    On the asymptotic behavior of the bounded solutions of a nonlinear Volterra equation. (**56** #16287)
**Macenko, P. K.** *See* **Hromov, A. P.**, (**49** #11161)
**Miluševa, S. D.** *See* **Baĭnov, Drumi D.**, (**58** #29926)
**Obretenov, Apostol** Asymptotic behavior of the solution of a Wiener-Hopf equation whose kernel is a probability density. (Bulgarian. Russian and English summaries) (**45** #2766)
**Pachpatte, B. G.** On a class of nonlinear *n*th order integrodifferential equations. (**57** #3790)
**Parasjuk, Ī. O.** The asymptotic behavior of the solutions of a certain class of integro-differential equations. (Russian) (**57** #1044)
**Raghavendra, V.** A converse theorem for the exponential stability of a class of nonlinear integrodifferential equations. (**57** #3791)
**Šamsutdinov, M. M.** *See* **Caljuk, Z. B.**, (**45** #839)
**Seĭtkazieva, Kulušaĭ** Asymptotic estimates in the theory of the branching of periodic solutions of singularly perturbed integro-differential equations with several small parameters multiplying the highest derivative. (Russian) (**58** #23439)
**Smolin, Ju. N.** *See* **Vinokurov, V. R.**, (**45** #836)
**Staffans, Olof J.** Positive definite measures with applications to a Volterra equation. (**56** #16289)
**Ved′, Ju. A.** (*with* Bajalieva, S. S.) The linear asymptotic properties of the solutions of second order integrodifferential equations of Volterra type with retarded argument. (Russian) (**58** #2098)
**Vinokurov, V. R.** (*with* Smolin, Ju. N.) The asymptotic behavior of Volterra equations with almost periodic kernels and retardations. (Russian) (**45** #836)
**Voronoĭ, O. M.** The asymptotic solution of a system of linear integro-differential equations that contain a small parameter. (Russian) (**58** #2099)

## 45M10 Stability theory

**Bennett, John B.** Stability properties of a Volterra integral equation. **57** #7080
**Bownds, John M.** (*with* Cushing, Jim M.) Some stability criteria for linear systems of Volterra integral equations. **48** #6862
    (*with* Cushing, Jim M.) On strong stability for linear integral equations. **52** #6359
    (*with* Cushing, Jim M.) Some stability theorems for systems of Volterra integral equations. **52** #14886
    (*with* Cushing, Jim M.) On preserving stability of Volterra integral equations under a general class of perturbations. **52** #3907
**Corduneanu, Adrian** Sur l'existence et la stabilité de la solution de l'équation intégrale non-linéaire de Volterra. (Romanian summary) **48** #9322
**Corduneanu, Constantin** Absolute stability of some integro-differential systems. **54** #13513
**Cushing, Jim M.** Strong stability of perturbed systems of Volterra integral equations. **52** #6360
    Stability of perturbed Volterra integral equations. **52** #8849
    *See also* **Bownds, John M., 48** #6862; **Bownds, John M., 52** #3907; **Bownds, John M., 52** #6359 *and* **Bownds, John M., 52** #14886
**Danilovič, V. P.** The stability of the solution of a certain nonlinear integral equation on a compact set. (Russian) **52** #6361
**DeFranco, R. J.** Some stability criteria for multiple Volterra integral equations with an application to gas chromatography. **58** #7008
**Gorlov, V. E.** On the question of the stability of the solutions of nonlinear singular integral equations. (Russian) **58** #29978
**Hardiman, Stephen T.** (*with* Tsokos, Chris P.) Existence and stability behavior of random solutions of a system of nonlinear random equations. **53** #1205
**Imanaliev, M. I.** ★Колебания и устойчивость решений сингулярно-возмущенных интегро-дифференциальных систем. (Russian) [Oscillations and stability of the solutions of singularly perturbed integrodifferential systems] **57** #10399
**Karpievič, N. A.** The stability of a certain class of integro-differential equations. (Russian) **48** #6863
**Kartsatos, Athanassios G.** (*with* Zigler, William R.) On a new method for studying the stability of Volterra integral equations. (Italian summary) **51** #8769
**Kudrewicz, Jacek** (*with* Odyniec, Michał) Small periodic oscillations in autonomous systems. (Polish. Russian and English summaries) **50** #14141
**Maeda, Hajime** Stability considerations for a Volterra integral equation with discontinuous nonlinearity. **47** #7366
**Miller, Richard K.** Preservation of uniform asymptotic stability under perturbations. **51** #8770
**Muszyński, Jerzy** Behaviour of solutions of an integral equation. (Loose Russian summary) **56** #3605
**Novikov, V. D.** The stability in the finite of the solutions of systems of integro-differential equations. (Russian) **50** #921
**Odyniec, Michał** *See* **Kudrewicz, Jacek, 50** #14141
**Pachpatte, B. G.** On preserving stability of Volterra integral equations. **57** #7081
    Perturbations of nonlinear systems of Volterra integral equations. **55** #3721
    Stability of Volterra integral equations under a general class of perturbations. **55** #3720
**Ramm, A. G.** A study of a certain class of integral equations. (Russian) **54** #3341 (EA 55/56) (E **55** #1016)
**Seĭtkazieva, A.** Linear hereditary systems with periodic coefficients. (Russian) **58** #23460
**Tsokos, Chris P.** *See* **Hardiman, Stephen T., 53** #1205
**Vinokurov, V. R.** Certain questions in the theory of the stability of Volterra integral equations. III. (Russian) **45** #5678
**Zigler, William R.** *See* **Kartsatos, Athanassios G., 51** #8769

Secondary classifications:

**Collatz, Lothar** Bifurcation diagrams. (**58** #24336)
**Freiria, A. A.** *See* **Izé, A. F.**, (**51** #13406)
**Grabmüller, Hans** Asymptotic behaviour of solutions of linear integro-differential equations. (**58** #12249)
**Izé, A. F.** (*with* Freiria, A. A.) Asymptotic behavior and nonoscillation of Volterra integral equations and functional differential equations. (**51** #13406)
**Pachpatte, B. G.** Integral inequalities of Gronwall-Bellman type and their applications. (**55** #751)
**Sell, George R.** Dichotomies for differential and integral equations. (**54** #874)
**Weis, Dennis G.** Asymptotic behavior of integral equations using monotonicity. (**58** #12238)
**Wörz-Busekros, Angelika** Global stability in ecological systems with continuous time delay. (**58** #9429)

## 45M99 None of the above, but in this section

**Cushing, Jim M.** Bifurcation of periodic solutions of integrodifferential systems with applications to time delay models in population dynamics. **58** #23461
**Filatov, A. N.** ★Методы усреднения в дифференциальных и интегро-дифференциальных уравнениях. (Russian) [Averaging methods in differential and integro-differential equations] **56** #3606
**Fink, A. M.** Estimates on the first eigenvalue of an integral equation. **58** #23462
**Hannsgen, Kenneth B.** Uniform boundedness in a class of Volterra equations. **51** #6336
**Korczyński, Jan** On a system of integro-functional equations appearing in a problem connected with a solid of revolution. **57** #3801
**Levin, Jacob J.** A bound on the solutions of a Volterra equation. **49** #1045
**Milošević, Radivoje R.** A remark concerning the proof of a certain integral inequality. (Serbo-Croatian. French summary) **49** #1046
**Prilepko, A. I.** Certain integral equations of the first kind for inverse problems. (Russian) **52** #1228
**Ramm, A. G.** Correction: "A study of a certain class of integral equations" (Dokl. Akad. Nauk SSSR **230** (1976), no. 2, 283–286). (Russian) **55** #1016
**Reneke, James A.** Continuity for Stieltjes-Volterra integral equations. **46** #7828
**Rešetov, N. Ja.** The singular solutions of a perturbed linear integral equation. (Russian) **45** #5687
**Vogel, Johannes** Untersuchungen über die Anzahl der Verzweigungslösungen bei Hammersteinschen Integralgleichungen im zweidimensionalen Verzweigungsfall der trivialen Lösung. **48** #11960

Secondary classifications:

**Chandra, Jagdish** (*with* Lakshmikantham, V.) Some point-wise estimates for solutions of a class of nonlinear functional-integral inequalities. (**47** #5476)
**Dhongade, U. D.** On boundedness and stability of perturbed differential and integral equations. (**58** #6538)
**Ėšmatov, H.** *See* **Movljankulov, H.**, (**58** #25276)
**Lakshmikantham, V.** *See* **Chandra, Jagdish**, (**47** #5476)

**Movljankulov, H.** (*with* Èšmatov, H.) Nonlinear oscillations of a viscoelastic rod. (Russian) (**58** #25276)
**Smith, Hal Leslie** On periodic solutions of a delay integral equation modelling epidemics. (**58** #20622)

## 45N05 Abstract integral equations, integral equations in abstract spaces

**Adali, Sarp** Existence and asymptotic stability of solutions of an abstract integrodifferential equation with applications to viscoelasticity. **57** #7082
**Aizicovici, Sergiu** Abstract integral equations of Volterrra type. **55** #8724
  Note on an abstract Volterra equation. **57** #1051
**Barbu, Viorel** Integro-differential equations in Hilbert spaces. (Romanian summary) **53** #6263
  On a nonlinear Volterra integral equation on a Hilbert space. **57** #1052
**Crandall, Michael G.** (*with* Londen, Stig-Olof; Nohel, John A.) An abstract nonlinear Volterra integrodifferential equation. **58** #17762
**Engibarjan, N. B.** (*with* Mnacakanjan, M. A.) The factorization of integral operators. (Russian) **49** #3483
**Fan Van Čyong** A smooth choice theorem and its application to multivalued integral equations. (Russian) **58** #17763
**Gavrin, V. P.** A definition of *F*-normal solvability. (Russian) **58** #29979
**Gollwitzer, H. E.** Admissibility and the integral equations of asymptotic theory. **53** #8843
**Helton, Jon C.** Solution of integral equations by product integration. **53** #8844
  Solution of two Volterra integral equations. **57** #17173
**Heunemann, Dieter** Über die normale Auflösbarkeit singulärer Integraloperatoren mit unstetigem Symbol. **58** #12259
**Hirschman, I. I., Jr.** Integral equations on certain compact homogeneous spaces. **48** #11961
**Klibanov, M. V.** On a class of operator equations of the first kind. (Russian) **58** #2109
**Kwapisz, Marian** On the existence and uniqueness of solutions of a certain integral-functional equation. **52** #1229
**Lavrent′ev, M. M.** Regularization of operator equations of Volterra type. (Russian) **58** #29980
**Linnik, I. Ju.** The canonical distribution of a class of Toeplitz operators on a locally compact abelian group. (Russian) **55** #3722
**Londen, Stig-Olof** (*with* Staffans, Olof J.) A note on Volterra equations in a Hilbert space. **57** #7083
  An existence result on a Volterra equation in a Banach space. **57** #13432
  *See also* **Crandall, Michael G.; et al.**, **58** #17762
**MacCamy, Richard C.** (*with* Smith, R. L.) Limits of solutions of Volterra integral equations. **53** #6264
**Miller, Richard K.** Volterra integral equations in a Banach space. **53** #14062
**Mnacakanjan, M. A.** *See* **Engibarjan, N. B.**, **49** #3483
**Nohel, John A.** *See* **Crandall, Michael G.; et al.**, **58** #17762
**Pachpatte, B. G.** On the stability and asymptotic behavior of solutions of integrodifferential equations in Banach spaces. **53** #6265
**Podowski, Michal** A new method of investigation of a certain class of integral equations describing the dynamics of physical processes. (Polish and Russian summaries) **54** #5774
**Reneke, James A.** Stieltjes integral equations in partially ordered sets. **51** #3839
**Ruhlīn, B. Ī.** A system of integral equations in a space of generalized functions. (Russian) **58** #29981
**Salsa, Sandro** Equazioni integrali di Wiener-Hopf in spazi di Besov e applicazioni. (English summary) **57** #10400
**Sapožnikov, V. D.** The smoothness of the solutions of a certain family of integral equations. (Russian) **46** #7829
**Schiaffino, Andrea** A compactness method for a class of semi-linear Volterra integro-differential equations in Banach spaces. (Italian summary) **58** #12260
**Smith, R. L.** *See* **MacCamy, Richard C.**, **53** #6264
**Solomon, Sender** A theorem of existence and uniqueness for an integral equation in topological spaces. **55** #8725
**Staffans, Olof J.** *See* **Londen, Stig-Olof**, **57** #7083
**Zaborova, T. N.** Invertibility of an integral operator of the first kind with an almost difference kernel. (Russian) **58** #29982
**Zamota, A. V.** Certain integral equations with kernels that are invariant with respect to groups. (Russian) **49** #5760

Secondary classifications:

**Aširov, S. A.** A study of the solutions of nonlinear Volterra operator equations. (Russian. English and Turkmen summaries) (**57** #7277)
  *See also* **Atdaev, S.**, (**58** #7245)
**Atdaev, S.** (*with* Aširov, S. A.) A study of the solutions of nonlinear multidimensional Volterra operator equations. (Russian) (**58** #7245)
**Barbu, Viorel** Nonlinear Volterra equations in a Hilbert space. (**51** #13791)
**Brascamp, Herm Jan** The Fredholm theory of integral equations for special types of compact operators on a separable Hilbert space. (**45** #977)
**Carton-Lebrun, C.** Properties of solutions of nonlinear integral equations of evolution type in Banach spaces. (**54** #5923)
**Cekanovs′kiĭ, È. R.** *See* **Malamud, M. M.**, (**57** #13582) *and* **Malamud, M. M.**, (**58** #23779)
**Deundjak, V. M.** The tensor product of algebras of discretely continual convolutions. (Russian) (**58** #18609)
**Goguadze, D. F.** Conditions for compactness in a certain new function space, and some nonlinear operators and nonlinear equations. (Russian) (**57** #10533)
**Gupta, Chaitan P.** On a class of nonlinear integral equations of Urysohn's type. (**58** #2498)
**Kiffe, Thomas R.** (*with* Stecher, Michael) Existence and uniqueness of solutions to abstract Volterra integral equations. (**58** #2073)
**Konstantinov, Mihail M.** The application of a norm with weight in existence uniqueness theorems for the solutions of functional equations in a Banach space v an unknown function that depends on several arguments. (Russian) (**56** #1153)
**Korotkov, V. B.** ★Интегральные операторы. (Russian) [Integral operators] (**58** #12428)
**Kostometov, G. P.** The asymptotic behavior of the spectrum of integral operators v polar kernels. (Russian. English summary) (**57** #17387)
**Lavrent′ev, M. M.** Some problems of the theory of ill-posed problems of mathemat analysis. (Russian) (**58** #30408)
**Lightbourne, James H., III** Periodic solutions and perturbed semigroups of linear operators. (**56** #16466)
**Ljapin, L. N.** Inclusions of Hammerstein type. (Russian) (**55** #1169)
**Londen, Stig-Olof** On an integral equation in a Hilbert space. (**58** #23401)
  On an integrodifferential Volterra equation with a maximal monotone mapp (**58** #17711)
**MacCamy, Richard C.** Nonlinear Volterra equations on a Hilbert space. (**51** #1377
**Malamud, M. M.** (*with* Cekanovs′kiĭ, È. R.) The linear equivalence of Volterra operators in Banach spaces. (Russian) (**58** #23779)
  (*with* Cekanovs′kiĭ, È. R.) Tests for the linear equivalence of Volterra opera in the scale $L_p[0, 1]$ $(1 < p < \infty)$. (Russian) (**57** #13582)
**Maruo, Kenji** Integral equation associated with some non-linear evolution equat (**51** #3986)
**Mihlin, S. G.** Singular integral equations in Sobolev spaces. (Russian. English summa (**57** #10503)
**Mosolova, S. S.** A certain variant of Ju. D. Sokolov's method of approximate solut for operator equations. (Russian. Uzbek summary) (**45** #2508)
**Nagnībida, M. Ī.** (*with* Oliĭnyk, N. P.) Some properties of Volterra operators in anal spaces. (Russian) (**58** #17941)
**Nayar, B. M.** Induced potential problem in three dimensions. (**58** #11467)
**Oğuztöreli, Mehmet Namık** On a class of integro-differential equations. (Italian summary) (**58** #12255)
**Oliĭnyk, N. P.** *See* **Nagnībida, M. Ī.**, (**58** #17941)
**Pachpatte, B. G.** Comparision theorems for integro-differential equations in Ban spaces. (**49** #7718)
  Quantitative stability analysis of integro-differential equations in Banach spa (**50** #718)
**Rall, L. B.** The Fredholm pseudoinverse—an analytic episode in the history of generalized inverses. (**58** #12235)
**Romanov, V. G.** Volterra operator equations of the first kind. Uniqueness clas (Russian) (**58** #29906)
**Solomon, Sender** On some integral equations in topological spaces. (**56** #9200)
**Stecher, Michael** *See* **Kiffe, Thomas R.**, (**58** #2073)
**Szufla, Stanisław** On the existence of solutions of Volterra integral equations in Ban space. (Russian summary) (**52** #1206)
  On the structure of solutions sets of differential and integral equations in Ban spaces. (**57** #3553)
  On Volterra integral equations in Banach spaces. (**58** #23402)
**Takano, Katsuo** An integral equation related to the Cameron-Storvick operator-val function space integral. (**58** #28400)
**Vaughn, R. L.** Existence and comparison results for nonlinear Volterra integral equations in a Banach space. (**58** #23423)
**Zaborova, T. N.** Noether's theorems for a class of integral equations of the first k with almost difference kernels. (Russian) (**58** #29935)

# 46–XX FUNCTIONAL ANALYSIS [For manifolds modelled topological linear spaces, see 57A20, 58Bxx.]

**Yosida, Kôsaku** ★Functional analysis. **50** #2851

Secondary classifications:

**Duttweiler, Donald L.** (*with* Kailath, Thomas) RKHS approach to detection and estimation problems. IV. Non-Gaussian detection. (**53** #10459)
  (*with* Kailath, Thomas) RKHS approach to detection and estimation proble V. Parameter estimation. (**53** #10460)
**Kailath, Thomas** *See* **Duttweiler, Donald L.**, (**53** #10459) *and* **Duttweiler, Donald** (**53** #10460)

## 46–01 Elementary exposition (collegiate level)

**Akilov, G. P.** *See* **Kantorovič, L. V.**, **58** #23465
**Aljančić, Slobodan** ★Uvod u realnu i funkcionalnu analizu. (Serbo-Croatian) [Introduction to real and functional analysis] **51** #1313 (EA **52**)
**Berberian, Sterling K.** ★Introduction to Hilbert space. **54** #3342
**Brown, A. L.** (*with* Page, Annie) ★Elements of functional analysis. **50** #10732
**Brown, Arlen** (*with* Pearcy, Carl M.) ★Introduction to operator theory. I. **58** #23
**Choquet-Bruhat, Y.** ★Distributions. **58** #2110
**Cignoli, Roberto** *See* **Cotlar, Mischa**, **53** #8845
**Cotlar, Mischa** (*with* Cignoli, Roberto) ★An introduction to functional analysis. **53** #8845
**Cristescu, Romulus** ★Topological vector spaces. **56** #12802
**Delves, L. M.** Function spaces and linear operators. **58** #7009
**(Dragnev, M. V.)** *See* **Kolmogorov, A. N.; et al.**, **51** #3840
**Epstein, Bernard** ★Linear functional analysis. Introduction to Lebesque integration infinite-dimensional problems. **51** #1314
**Fage, M. K.** ★Теория линейных операторов. (Russian) [Theory of linear operat **54** #3343
**(Fiedler, Klaus)** *See* **Ljusternik, L. A.; et al.**, **53** #14063
**Fomīn, S. V.** *See* **Kolmogorov, A. N.; et al.**, **51** #3840; **Kolmogorov, A. N.**, **51** #136

**Kolmogorov, A. N.**, 51 #13617; **Kolmogorov, A. N.**, 55 #8728 *and* **Kolmogorov, A. N.**, 56 #6323
**(Freitag, Dietrich)** *See* **Kolmogorov, A. N.; et al.**, 56 #6323
**Fuchssteiner, Benno** (*with* Laugwitz, Detlef) ★Funktionalanalysis. 58 #29983
**Gheorghiu, N.** ★Introducere în analiza funcţională. (Romanian) [Introduction to functional analysis.] 57 #1053
**(González Villalobos, A.)** *See* **Cotlar, Mischa; et al.**, 53 #8845
**(Gorin, E. A.)** *See* **Rudin, Walter**, 56 #16309
**(Gröger, Konrad)** *See* **Ljusternik, L. A.; et al.**, 53 #14063
**Grossmann, Siegfried** ★Funktionalanalysis. I, II: Im Hinblick auf Anwendungen in der Physik. 55 #8726
**Hervé, Michel** ★Cours sur les distributions. 58 #23464
**Heuser, Harro** ★Funktionalanalysis. 58 #2111
**Hille, Einar** ★Methods in classical and functional analysis. 57 #3802
**Hirzebruch, F.** (*with* Scharlau, Winfried) ★Einführung in die Funktionalanalysis. 57 #3803
**Hönig, Chaim Samuel** ★Análise functional e aplicações. Vols. I, II. (Portuguese) [Functional analysis and applications. Vols. I, II] 57 #1054
★Análise funcional e o problema de Sturm-Liouville. (Portuguese) [Functional analysis and the Sturm-Liouville problem] 55 #8727
**Kantorovič, L. V.** (*with* Akilov, G. P.) ★Функциональный анализ. (Russian) [Functional analysis] 58 #23465
**Kolmogorov, A. N.** (*with* Fomīn, S. V.; Tihomirov, V. M.) ★Eléments de la théorie des fonctions et de l'analyse fonctionnelle. 51 #3840
(*with* Fomīn, S. V.) ★Елементи теорії функцій і функціонального аналізу. (Ukrainian) [Elements of the theory of functions and functional analysis] 51 #13616
(*with* Fomīn, S. V.) ★Introductory real analysis. 51 #13617
(*with* Fomīn, S. V.) ★Reelle Funktionen und Funktionalanalysis. 56 #6323
(*with* Fomīn, S. V.) ★Элементы теории функций и функционального анализа. (Russian) [Elements of the theory of functions and functional analysis] 55 #8728
**Kreyszig, Erwin** ★Introductory functional analysis with applications. 57 #7084
**Kudrewicz, Jacek** ★Analiza funkcjonalna dla automatyków i elektroników. (Polish) [Functional analysis for control engineers and electrical engineers] 56 #9212
**Kufner, Alois** ★Geometrie Hilbertova prostoru. (Czech) [The geometry of Hilbert space] 55 #10988
**Larsen, Ronald** ★Functional analysis: an introduction. 57 #1055
★Banach algebras. 58 #7010
**Laugwitz, Detlef** *See* **Fuchssteiner, Benno**, 58 #29983
**(Lin, V. Ja.)** *See* **Rudin, Walter**, 56 #16309
**Ljusternik, L. A.** (*with* Sobolev, V. I.) ★Elemente der Funktionalanalysis. 53 #14063
**Maddox, Ivor J.** ★Elements of functional analysis. 52 #11515
**Marinescu, Gheorghe** ★Tratat de analiză funcţională. Vol. II. (Romanian) [Treatise on functional analysis. Vol. II] 51 #6337
**Meissl, P.** Elements of functional analysis. 55 #8729 (EA 55/56)
**(Mihăilescu-Suliciu, Mihaela)** *See* **Cristescu, Romulus**, 56 #12802
**Musielak, Julian** ★Wstęp do analizy funkcjonalnej. (Polish) [Introduction to functional analysis] (Not reviewed)
**Packel, Edward W.** ★Functional analysis. 51 #11041
★Functional analysis: a short course. 52 #14887
**Page, Annie** *See* **Brown, A. L.**, 50 #10732
**(Palme, H.)** *See* **Kolmogorov, A. N.; et al.**, 56 #6323
**Pearcy, Carl M.** *See* **Brown, Arlen**, 58 #23463
**Pflaumann, Erika** (*with* Unger, Heinz) ★Funktionalanalysis. I. 57 #3804a
(*with* Unger, Heinz) ★Funktionalanalysis. II. 57 #3804b
**Pryce, J. D.** ★Basic methods of linear functional analysis. 50 #10733
**Rudin, Walter** ★Functional analysis. 51 #1315
★Функциональный анализ. (Russian) [Functional analysis] 56 #16309
**Sawyer, Walter Warwick** ★A first look at numerical functional analysis. 58 #17764
**Scharlau, Winfried** *See* **Hirzebruch, F.**, 57 #3803
**Schechter, Martin** ★Principles of functional analysis. 56 #3607
★Principles of functional analysis. 57 #7085
**Schwartz, Laurent** ★Analyse. 57 #7087
**Šilov, G. E.** ★Elementary functional analysis. 53 #3630
**(Silverman, Richard A.)** *See* **Kolmogorov, A. N.; et al.**, 51 #13617 *and* **Šilov, G. E.**, 53 #3630
**Sobolev, V. I.** *See* **Ljusternik, L. A.**, 53 #14063
**(Stöckert, Bernd)** *See* **Kolmogorov, A. N.; et al.**, 56 #6323
**Tihomirov, V. M.** *See* **Kolmogorov, A. N.; et al.**, 51 #3840 *and* **Kolmogorov, A. N.; et al.**, 51 #13616
**(Torchinsky, Alberto)** *See* **Cotlar, Mischa; et al.**, 53 #8845
**Unger, Heinz** *See* **Pflaumann, Erika**, 57 #3804a *and* **Pflaumann, Erika**, 57 #3804b
**Voigt, Alexander** (*with* Wloka, Joseph) ★Hilberträume und elliptische Differentialoperatoren. 56 #12803
**Wloka, Joseph** ★Funktionalanalysis und Anwendungen. 57 #7088
*See also* **Voigt, Alexander**, 56 #12803
**Wright, John David Maitland** Functional analysis for the practical man. 57 #1056
**Yosida, Kôsaku** ★Functional analysis. 58 #17765
**Geometry of Banach spaces** *See* **Séminaire: Géométrie des Espaces de Banach**, 58 #23467
**Séminaire:**
**Géométrie des Espaces de Banach** ★Séminaire sur la Géométrie des Espaces de Banach (1977–1978). 58 #23467

Secondary classifications:

**Ahiezer, N. I.** (*with* Glazman, I. M.) ★Theorie der linearen Operatoren im Hilbert-Raum. (58 #30343)
**Akilov, G. P.** *See* **Kantorovič, L. V.**, (56 #16402)
**Artémiadis, Nicolas K.** ★Real analysis. (57 #6311)
**(Basch, Michael)** *See* **Rektorys, K.**, (58 #7268b)
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**Craioveanu, Mircea** (*with* Raţiu, Tudor S.) ★Elemente de analiză locală. I. (Romanian) [Elements of local analysis. I.] (58 #2844a)
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**Hoffman, Kenneth** ★Analysis in Euclidean space. (56 #12186)
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**Kantorovič, L. V.** (*with* Akilov, G. P.) ★Funktionalanalysis in normierten Räumen. (56 #16402)
**(Köthe, Gottfried)** *See* **Ahiezer, N. I.; et al.**, (58 #30343)
**Križanič, France** ★Linearna algebra in linearna analize. (Slovenian) [Linear algebra and linear analysis] (51 #7762)
**(Kuczma, Marcin E.)** *See* **Szmydt, Zofia**, (58 #22952b)
**(Kühne, Rolf)** *See* **Kantorovič, L. V.; et al.**, (56 #16402)
**Kühner, Ernst** (*with* Lesky, Peter) ★Grundlagen der Funktionalanalysis und Approximationstheorie. (57 #6946)
**(Langer, Heinz)** *See* **Kantorovič, L. V.; et al.**, (56 #16402)
**Lesky, Peter** *See* **Kühner, Ernst**, (57 #6946)
**(Mai, Brigitte)** *See* **Smirnov, V. I.**, (55 #5807)
**Mukherjea, Arunava** (*with* Pothoven, Kenneth L.) ★Real and functional analysis. (58 #11294)
**(Müller, Paul Heinz)** *See* **Kantorovič, L. V.; et al.**, (56 #16402)
**Nikol′skiĭ, S. M.** ★Курс математического анализа. Томы I, II. (Russian) [A course in mathematical analysis. Vols. I, II.] (50 #7439)
**Nikol′skiĭ, V. N.** *See* **Volkov, V. I.**, (53 #7668)
**Pothoven, Kenneth L.** *See* **Mukherjea, Arunava**, (58 #11294)
**Raţiu, Tudor S.** *See* **Craioveanu, Mircea**, (58 #2844a) *and* **Craioveanu, Mircea**, (58 #2844b)
**Rektorys, K.** ★Variační metody v inženýrských problémech a v problémech matematické fyziky. (Czech) [Variational methods in engineering problems and in problems of mathematical physics] (58 #7268a)
★Variational methods in mathematics, science and engineering. (58 #7268b)
**(Romanov, A. I.)** *See* **Volkov, V. I.; et al.**, (53 #7668)
**Rudin, Walter** ★Real and complex analysis. (49 #8783)
★Analyse réelle et complexe. (52 #10292)
**Šilov, G. E.** ★Математический анализ: Функции одного переменного. Часть 3. (Russian) [Mathematical analysis: Functions of one variable. Part 3] (47 #1)
★Analyse mathématique: fonctions d'une variable. 3e partie. (49 #8777)
★An introduction to the theory of linear spaces. (55 #8058)
**(Silverman, Richard A.)** *See* **Šilov, G. E.**, (55 #8058)
**Smirnov, V. I.** ★Lehrgang der höheren Mathematik, Teil V. (55 #5807)
**Szmydt, Zofia** ★Transformacja Fouriera i równania różniczkowe liniowe. (Polish) [Fourier transforms and linear differential equations] (58 #22952a)
★Fourier transformation and linear differential equations. (58 #22952b)
**Takeuchi, Yu** Space with the operator metric. (Spanish) (58 #30344)
**Taldykin, A. T.** ★Векторные функции и уравнения (с приложениями к теории управления). (Russian) [Vector functions and equations (with applications to control theory)] (58 #20641)
**Volkov, V. I.** (*with* Nikol′skiĭ, V. N.) ★Математический анализ и теория функций. Вып. 7. (Russian) [Mathematical analysis and the theory of functions. No. 7] (53 #7668)
**Vol′pert, A. I.** (*with* Hudjaev, S. I.) ★Анализ в классах разрывных функций и уравнения математической физики. (Russian) [Analysis in classes of discontinuous functions, and the equations of mathematical physics] (55 #903)

## 46–02 Advanced exposition (research surveys, etc.)

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**Bachman, George** *See* **Narici, Lawrence; et al.**, 50 #14142
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**Citlanadze, È. S.** *See* **Birman, M. Š.; et al.**, 50 #5406 *and* **Vilenkin, N. Ja.; et al.**, 52 #11516
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**Faddeev, L. D.** *See* **Birman, M. Š.; et al.**, 50 #5406 *and* **Vilenkin, N. Ja.; et al.**, 52 #11516
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**Gorin, E. A.** *See* **Birman, M. Š.; et al.**, 50 #5406 *and* **Vilenkin, N. Ja.; et al.**, 52 #11516
**Iohvidov, I. S.** *See* **Birman, M. Š.; et al.**, 50 #5406
**Kadec′, M. Ī.** *See* **Birman, M. Š.; et al.**, 50 #5406
**Kostjučenko, A. G.** *See* **Birman, M. Š.; et al.**, 50 #5406 *and* **Vilenkin, N. Ja.; et al.**, 52 #11516

**Krasnosel'skiĭ, M. A.** *See* **Birman, M. Š.; et al., 50** #5406
**Krasnosel'skiĭ, S. G.** *See* **Vilenkin, N. Ja.; et al., 52** #11516
**Kreĭn, S. G.** *See* **Birman, M. Š.; et al., 50** #5406 *and* **Vilenkin, N. Ja.; et al., 52** #11516
**Kutateladze, S. S.** *See* **Agranovskiĭ, M. L.; et al., 54** #879
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(*with* Tzafriri, Lior) ★Classical Banach spaces. I. **58** #17766
**Ljusternik, L. A.** (*with* Sobolev, V. I.) ★Elements of functional analysis. **49** #7721
(*with* Sobolev, V. Ja.) ★Elements of functional analysis. **50** #2852
**(Mai, Brigitte)** *See* **Riesz, Frigyes; et al., 49** #9570
**Maslov, V. P.** *See* **Vilenkin, N. Ja.; et al., 52** #11516
**Mitjagin, B. S.** *See* **Birman, M. Š.; et al., 50** #5406 *and* **Vilenkin, N. Ja.; et al., 52** #11516
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**Narici, Lawrence** (*with* Beckenstein, Edward; Bachman, George) ★Functional analysis and valuation theory. **50** #14142
**Petunīn, Ju. Ī.** *See* **Birman, M. Š.; et al., 50** #5406 *and* **Vilenkin, N. Ja.; et al., 52** #11516
**Riesz, Frigyes** (*with* Sz.-Nagy, Béla) ★Vorlesungen über Funktionalanalysis. **49** #9570
**Rutickiĭ, Ja. B.** *See* **Birman, M. Š.; et al., 50** #5406 *and* **Vilenkin, N. Ja.; et al., 52** #11516
**Semenov, E. M.** *See* **Birman, M. Š.; et al., 50** #5406
**Sinclair, Allan M.** ★Automatic continuity of linear operators. **58** #7011
**Smirnov, V. I.** ★Курс высшей математики. Том 5. (Russian) [A course in higher mathematics. Vol. 5] **50** #5407
★Lehrgang der höheren Mathematik. Teil V. **50** #5408
**Sobolev, V. I.** *See* **Ljusternik, L. A., 49** #7721; **Birman, M. Š.; et al., 50** #5406 *and* **Vilenkin, N. Ja.; et al., 52** #11516
**Sobolev, V. Ja.** *See* **Ljusternik, L. A., 50** #2852
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**Sz.-Nagy, Béla** *See* **Riesz, Frigyes, 49** #9570
**Tzafriri, Lior** *See* **Lindenstrauss, Joram, 54** #3344 *and* **Lindenstrauss, Joram, 58** #17766
**Vilenkin, N. Ja.** (*with* Gorin, E. A.; Kostjučenko, A. G.; Krasnosel'skiĭ, S. G.; Kreĭn, S. G.; Maslov, V. P.; Mitjagin, B. S.; Petunīn, Ju. Ī.; Rutickiĭ, Ja. B.; Sobolev, V. I.; Stecenko, V. Ja.; Faddeev, L. D.; Citlanadze, È. S.) ★Functional analysis. **52** #11516
*See also* **Birman, M. Š.; et al., 50** #5406
**(Votruba, George F.)** *See* **Vilenkin, N. Ja.; et al., 52** #11516
**Vuvunikjan, Ju. M.** *See* **Agranovskiĭ, M. L.; et al., 54** #879
**Zabreĭko, P. P.** *See* **Birman, M. Š.; et al., 50** #5406

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**(Alexiewicz, Andrzej)** *See* **Maurin, Krzysztof,** (**53** #11390)
**Balakrishnan, A. V.** ★Applied functional analysis. (**57** #10445)
**(Barker, George Phillip)** *See* **Glazman, I. M.; et al.,** (**50** #7195)
**(Danskin, John M., Jr.)** *See* **Phan Đình Diêu,** (**57** #5704)
**Glazman, I. M.** (*with* Ljubič, Ju. I.) ★Конечномерный линейный анализ в задачах. (Russian) [Finite-dimensional analysis in problems] (**50** #7192)
(*with* Ljubič, Ju. I.) ★Analyse linéaire dans les espaces de dimensions finies: manuel en problèmes. (**50** #7193)
(*with* Ljubič, Ju. I.) ★Analyse linéaire dans les espaces de dimensions finies: manuel en problèmes. (**50** #7194)
(*with* Ljubič, Ju. I.) ★Finite-dimensional linear analysis: a systematic presentation in problem form. (**50** #7195)
**Henstock, Ralph** ★Linear analysis. (**54** #7725)
**Hewitt, Edwin** (*with* Stromberg, Karl) ★Real and abstract analysis. (**51** #3363)
**Hille, Einar** (*with* Phillips, Ralph S.) ★Functional analysis and semi-groups. (**54** #11077)
**(Kuerti, G.)** *See* **Glazman, I. M.; et al.,** (**50** #7195)
**Ljubič, Ju. I.** *See* **Glazman, I. M.,** (**50** #7192); **Glazman, I. M.,** (**50** #7193); **Glazman, I. M.,** (**50** #7194) *and* **Glazman, I. M.,** (**50** #7195)
**Maurin, Krzysztof** ★Methods of Hilbert spaces. (**53** #11390)
**(Musielak, Julian)** *See* **Przeworska-Rolewicz, Danuta; et al.,** (**54** #963)
**Nachbin, Leopoldo** ★Elements of approximation theory. (**54** #3261)
**(Nikol'skiĭ, N. K.)** *See* **Investigations in linear operators and function theory,** (**46** #7927)
**Phan Đình Diêu** ★Some questions in constructive functional analysis. (**57** #5704)
**Phillips, Ralph S.** *See* **Hille, Einar,** (**54** #11077)
**Przeworska-Rolewicz, Danuta** (*with* Rolewicz, Stefan) ★Equations in linear spaces. [Monographs in Mathematics. Vol. 47] (**54** #963)
**Rolewicz, Stefan** *See* **Przeworska-Rolewicz, Danuta,** (**54** #963)
**Roman, Paul** ★Some modern mathematics for physicists and other outsiders. (**52** #13049)
**Schock, Eberhard** (*with* Weis, Lutz) Einige Aspekte der Funktionalanalysis. (See RŽMat **1976** #7 B585)
**Stout, Edgar Lee** ★The theory of uniform algebras. (**54** #11066)
**Stromberg, Karl** *See* **Hewitt, Edwin,** (**51** #3363)
**Triebel, Hans** ★Höhere Analysis. (**50** #12511)
**Weis, Lutz** *See* **Schock, Eberhard,** (See RŽMat **1976** #7 B585)
**(Wood, James S.)** *See* **Investigations in linear operators and function theory,** (**46** #7927)
**(Zawadowski, Wacław)** *See* **Maurin, Krzysztof,** (**53** #11390)
**Function theory** *See* **Investigations in linear operators and function theory,** (**46** #7927)
**Investigations in linear operators and function theory** ★Investigations in linear operators and function theory, Part I. (**46** #7927)
**Linear operators** *See* **Investigations in linear operators and function theory,** (**46** #7927)
**Proceedings of the Steklov Institute of Mathematics** *See* **Phan Đình Diêu,** (**57** #5704)
**Seminars in Mathematics (V. A. Steklov Math. Inst., Leningrad)** *See* **Investigations in linear operators and function theory,** (**46** #7927)

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**Batt, Jürgen** Die Verallgemeinerungen des Darstellungssatzes von F. Riesz und i Anwendungen. **58** #29985
**(Fernández, Begoña)** *See* **Development of functional analysis, 51** #1316
**(Horváth, John)** *See* **Development of functional analysis, 51** #1316
**(López Yáñez, Alejandro)** *See* **Development of functional analysis, 51** #1316
**(Mejía, Hugo)** *See* **Development of functional analysis, 51** #1316
**Monna, A. F.** ★Functional analysis in historical perspective. **58** #2112
**(Montejano P., Luis)** *See* **Development of functional analysis, 51** #1316
**(Quintero, Ricardo)** *See* **Development of functional analysis, 51** #1316
**(Rodríguez, Enriqueta)** *See* **Development of functional analysis, 51** #1316
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Secondary classifications:

**Aleksandrov, P. S.** (*with* Gel'fand, I. M.; Gorin, E. A.; Grušin, V. V.; Kolmogorov, N.; Oleĭnik, O. A.; Palamodov, V. P.; Fomīn, S. V.) Georgiĭ Evgen'evič Šilo Obituary. (Russian) (**53** #12836)
**(Banach, Stefan)** *See* **Monna, A. F.,** (**52** #10329)
**Bernkopf, M.** The introduction of abstract ideas into the theory of function space (Russian) (**58** #27058)
**(Bogoljubov, O. M.)** *See* **History of national mathematics in four volumes,** (**58** #2668
**Borgwadt, Heidemarie** Die historische Entwicklung der Funktionalanalysis zu eine selbständigen mathematischen Disciplin. (**57** #15906)
**Browder, Félix E.** The relation of functional analysis to concrete analysis in 20th centur mathematics. (**58** #4892)
**(Deheuvels, Paul)** *See* **Oeuvres: Lévy, Paul,** (**58** #27164a)
**Dorofeeva, A. V.** (*with* Rybnikov, K. A.) De la formation des notions fondamentales d l'analyse fonctionnelle au XIX$^{e}$ siècle. (**58** #21255)
The development of the theory of integral equations up to the works of Hilber (Russian) (**58** #21202)
**(Dugué, Daniel)** *See* **Oeuvres: Lévy, Paul,** (**58** #27164a)
**Fomīn, S. V.** *See* **Aleksandrov, P. S.; et al.,** (**53** #12836)
**Gel'fand, I. M.** *See* **Aleksandrov, P. S.; et al.,** (**53** #12836)
**Gorin, E. A.** *See* **Aleksandrov, P. S.; et al.,** (**53** #12836)
**Grušin, V. V.** *See* **Aleksandrov, P. S.; et al.,** (**53** #12836)
**(Ibéro, Michel)** *See* **Oeuvres: Lévy, Paul,** (**58** #27164a)
**(Juškevič, A. P.)** *See* **History of national mathematics in four volumes,** (**58** #26682)
**Katetov, Miroslav** On certain aspects of the development of functional analysis. (Russian) (**58** #27072)
**Kolmogorov, A. N.** *See* **Aleksandrov, P. S.; et al.,** (**53** #12836)
**Köthe, Gottfried** J. Sebastião e Silva et l'analyse fonctionnelle. (**53** #2594)
**Lévy, Paul** Functions of lines and functional differential equations. (Russian) (**58** #27076)
*See also* **Oeuvres: Lévy, Paul,** (**58** #27164a)
**Medvedev, F. A.** The founders of functional analysis on its early history. (Russian (**58** #27079)
The first monograph on functional analysis. (Russian) (**58** #27080)
**Monna, A. F.** Banach's *Théorie des opérations linéaires*. (**52** #10329)
**Oleĭnik, O. A.** *See* **Aleksandrov, P. S.; et al.,** (**53** #12836)
**Palamodov, V. P.** *See* **Aleksandrov, P. S.; et al.,** (**53** #12836)
**(Pincherle, S.)** *See* **Medvedev, F. A.,** (**58** #27080)
**Rybnikov, K. A.** *See* **Dorofeeva, A. V.,** (**58** #21255)
**(Sebastião e Silva, José)** *See* **Köthe, Gottfried,** (**53** #2594)
**(Šilov, G. E.)** *See* **Aleksandrov, P. S.; et al.,** (**53** #12836)
**(Štokalo, Ĭ. Z.)** *See* **History of national mathematics in four volumes,** (**58** #26682)
**Bibliography:**
**Šilov, G. E.** *See* **Aleksandrov, P. S.; et al.,** (**53** #12836)
**History of mathematics** *See* **History of national mathematics in four volumes,** (**58** #26682)
**History of national mathematics in four volumes** ★История отечественной математик в четырех томах. Том 4. Книги 1 и 2: 1917–1967. (Russian) [History of nationa mathematics in four volumes. Vol. 4. Books 1 and 2: 1917–1967] (**58** #26682)
**Obituary:**
**Šilov, G. E.** *See* **Aleksandrov, P. S.; et al.,** (**53** #12836)
**Oeuvres:**
**Lévy, Paul** ★Oeuvres de Paul Lévy. Vol. I. (**58** #27164a)

## 46–04 Explicit machine computation and programs (not the theory computation or programming)

Secondary classifications:

**Coleman, Bernard D.** (*with* Mizel, Victor J.) Methods of constructing non-linear functionals which separate sets in Hilbert spaces. (Italian summary) (**58** #17844)
**Mizel, Victor J.** *See* **Coleman, Bernard D.,** (**58** #17844)

## 46–06 Collections of papers; proceedings of conferences

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**(Akilov, G. P.)** *See* **Operator theory in function spaces, 58** #2114
**(Amanov, T. I.)** *See* **Imbedding theorems and their applications, 56** #9214
**(Araki, Huzihiro)** *See* **$C^*$-algebras and applications to physics, 58** #2113
**(Asplund, Edgar)** *See* **Proceedings: Seminar on Random Series, Convex Sets and**

**Geometry of Banach Spaces**, 52 #1230
(**Baker, John Warren**) *See* **Banach spaces of analytic functions**, 56 #1004
(**Berezans′kiĭ, Ju. M.**) *See* **Methods of functional analysis in problems of mathematical physics**, 58 #29991
(**Bierstedt, Klaus-Dieter**) *See* **Functional analysis: surveys and recent results**, 56 #12805
(**Choquet, Gustave**) *See* **Séminaire: Choquet**, 52 #6362; **Séminaire: Choquet**, 52 #6363; **Séminaire: Choquet**, 52 #6364 *and* **Séminaire: Choquet**, 57 #13433
(**Cleaver, Charles E.**) *See* **Banach spaces of analytic functions**, 56 #1004
(**Diestel, Joseph**) *See* **Banach spaces of analytic functions**, 56 #1004
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(**Garnir, Henry G.**) *See* **Functional analysis and its applications**, 49 #11187
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(**Goulaouic, C.**) *See* **Publications: Séminaires de Mathématiques**, 50 #5409
(**Hogbe-Nlend, Henri**) *See* **Actes: Colloque d'Analyse Fonctionnelle de Bordeaux**, 49 #11181; **Actes: Colloque d'Analyse Fonctionnelle de Bordeaux**, 49 #11182; **Actes: Colloque d'Analyse Fonctionnelle de Bordeaux**, 49 #11183 *and* **Actes: Colloque d'Analyse Fonctionnelle de Bordeaux**, 49 #11184
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(**Kobkova, V. I.**) *See* **Application of functional methods to the boundary value problems of mathematical physics**, 50 #14144
(**Krée, Paul R.**) *See* **Séminaire: Paul Krée**, 52 #14889
(**Krein, S. G.**) *See* **Collection: Applications of functional analysis**, 55 #3723
(**Ligaud, Jean Pierre**) *See* **Séminaire: Analyse**, 58 #17767
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(**Marčenko, V. O.**) *See* **Mathematical physics and functional analysis**, 57 #7086
(**Maurey, Bernard**) *See* **Séminaire: Maurey-Schwartz**, 52 #8851; **Séminaire: Maurey-Schwartz**, 52 #8852 *and* **Séminaire: Maurey-Schwartz**, 52 #8853
**Medeiros, Luiz Adauto** ★Tópicos de análise funcional. (Portuguese) [Topics in functional analysis] 58 #23466
(**Mitjagin, B. S.**) *See* **Geometry of linear spaces and operator theory**, 57 #7090
(**Mitropol′s′kiĭ, Ju. O.**) *See* **Methods of functional analysis in problems of mathematical physics**, 58 #29991
(**Nachbin, Leopoldo**) *See* **Functional analysis and applications**, 49 #11186 *and* **Analyse fonctionelle et applications**, 50 #14143
(**Nikol′skiĭ, N. K.**) *See* **Investigations in linear operators and function theory**, 49 #5761
(**Nikol′skiĭ, S. M.**) *See* **Imbedding theorems and their applications**, 56 #9214
(**Nikol′skiĭ, V. N.**) *See* **Application of functional analysis in approximation theory**, 58 #29986; **Application of functional analysis in approximation theory**, 58 #29987 *and* **Application of functional analysis in approximation theory**, 58 #29988
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(**Schwartz, Laurent**) *See* **Séminaire: Laurent Schwartz**, 52 #8850; **Séminaire: Maurey-Schwartz**, 52 #8851; **Séminaire: Maurey-Schwartz**, 52 #8852 *and* **Séminaire: Maurey-Schwartz**, 52 #8853
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**Schmets, Jean** Indépendance des propriétés de tonnelage et d'évaluabilité affaiblis. (English summary) **48** #4677

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**Vangeldère, J.** Frank separation of two convex sets and Hahn-Banach theorem. **57** #10404
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**Bombal Gordón, Fernando** (*with* Vera, G.) Correction to: "Means in locally convex spaces and semi-reflexivity" (Collect. Math. **24** (1973), 267–295). **54** #11018
**Floret, Klaus** (*with* Wriedt, Michael) Reflexivität und Bestapproximation in Fréchet-Räumen. **47** #9224
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**Henson, C. Ward** (*with* Moore, L. C., Jr.) Semi-reflexivity of the nonstandard hulls of locally convex space. (See Zbl **276** #46006; MR **57** #12159)
**Kutzler, Kurt** *See* **Binz, Ernst; et al., (46** #7841)
**Lindenstrauss, Joram** (*with* Tzafriri, Lior) The uniform approximation property in Orlicz spaces. (**53** #3648)
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**Edwards, Robert E.** (*with* Price, John F.) Errata: "A naively constructive approach t boundedness principles, with applications to harmonic analysis" (Enseignement Math. (2) **16** (1970), 255-296 (1971)). **50** #14153
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(*with* Kac, M. P.) Corrections to the paper by A. Kurato and M. P. Kac: "Theorems on lifting vector-valued functions" (Izv. Akad. Nauk SSSR Ser. Mat. **39** (1975), 911–925). (Russian) **58** #7018b

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**Nielsen, Niels Jørgen** Components and open mapping theorems. **46** #7843

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**Adasch, Norbert** (*with* Ernst, Bruno) Teilräume gewisser topologischer Vektorräume. (**50** #10738)

**Arosio, Alberto** (*with* Ferreira, A. V.) On the completion of a $b$-space. (Italian summary) (**55** #13203)

**Bjon, Sten** Vervollständigung streng ausgeglichener Limesvektorräume. I. (**58** #12420a)

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**Boland, Philip J.** Holomorphic functions on nuclear spaces. (**52** #8931)

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pseudo-prodotti interni. **52** #6388
**(Bari, N. K.)** *See* **Gerisch, W., 45** #869
**Benítez, Carlos** A property of Birkhoff orthogonality, and a characterization of pre-Hilbert spaces. (Spanish) **56** #16343
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**Berens, Hubert** (*with* Westphal, Ursula) Kodissipative metrische Projektionen in normierten linearen Räumen. (English summary) **58** #23521
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**Degani Cattelani, Franca** (*with* Fiocchi, Cristina) Problema degli autovalori in spazi con prodotto pseudo-interno. **51** #13657
**Diminnie, Charles R.** (*with* White, Albert G., Jr.) 2-inner product spaces and Gâteaux partial derivatives. **51** #6375
(*with* Gähler, Siegfried; White, Albert G., Jr.) 2-inner product spaces. II. **56** #3623
**Facchinetti, Gisella** *See* **Barbieri, Francesco, 52** #6388
**Finci, Kalmi** *See* **Vajzović, Fikret, 52** #14949
**Fiocchi, Cristina** *See* **Degani Cattelani, Franca, 51** #13657
**Gähler, Siegfried** *See* **Diminnie, Charles R.; et al., 56** #3623
**Gerisch, W.** A remark on the works of N. K. Bari on biorthogonal systems and bases in Hilbert space. (Russian) **45** #869
**Guccione, S. J., Jr.** (*with* Stanojević, Časlav V.) Probabilistic foundations of quantum theories and Rubin-Stone spaces. **53** #14096
(*with* Stanojević, Časlav V.) A class of functional equations and Mielnik probability spaces. **56** #12854
**Guichardet, Alain** Espaces Hilbertiens symétriques et produits tensoriels continus. **52** #14947
**Heuvers, Konrad John** On the types of functions which can serve as scalar products in a complex linear space. **47** #788
**Karamardian, Stepan** A further generalization of Kirszbraun's theorem. **49** #5792
**Loy, Richard J.** Local analytic structure in certain commutative topological algebras. **45** #9147
**Mączyński, Maciej J.** Orthomodularity and lattice characterization of Hilbert spaces. (Russian summary) **53** #14097
**Martín Peinador, Elena** Construction of the topology of weak convergence in Hilbert space. (Spanish) **50** #14183
**Miličić, Pavle M.** *C*-complete systems in normed spaces. **56** #16344
**Noor, M. Aslam** Bilinear forms and convex sets in Hilbert space. (Italian summary) **46** #9700
**de las Obras-L. Nasarre, M.ª Carmen** On convergence in Hilbert space of sequences of subspaces of finite dimension and codimension. (Spanish. English summary) **48** #9364 (EA **50**)
On convergence in Hilbert space of sequences of subspaces of finite dimension and codimension. II. (Spanish) **51** #6376
**Olevskiĭ, A. M.** Operators that produce conditional bases in a Hilbert space. (Russian) **47** #7394
**Onieva Aleixandre, Víctor Manuel** On the set of rays in a Hilbert space. (Spanish. English summary) **47** #7395
The problem of change in Hilbert space with respect to a dependence that is an extension of linear dependence. (Spanish) **50** #10777
On the partition of a vector sequence in topologically free systems. (Spanish) **50** #8029
**Piziak, Robert** Sesquilinear forms in infinite dimensions. **47** #7396
**Plans, Antonio** On the set of rays in Hilbert space. (Spanish) **49** #11223
Definition of a topology in the set of rays of a Hilbert space. (Spanish) **50** #2886
A basis for a weak topology in the set of rays of a Hilbert space, defined by means of hyperplanes. (Spanish) **50** #8030
**Popowicz, Z.** Remarks on dual structures in a Dirac space. (Russian summary) **52** #14948
**Precupanu, Teodor** On a generalization of Cauchy-Buniakowski-Schwarz inequality. **56** #1038
**del Río, Miguel** (*with* Benítez, Carlos) The rectangular constant for two-dimensional spaces. **56** #6349
**Rosca, Ioan** Semi-produit scalaire et représentations de type de Riesz pour les fonctionnelles linéaires et bornées sur les espaces normés. (English summary) **56** #3624
**Rzewuski, Jan** Rosette spaces. I. (Russian summary) **50** #2887
**Sekackiĭ, V. V.** A characteristic property of algebraic subvarieties in Hilbert space. (Russian) (See RŽMat **1976** #10 B538; MR **58** #28740)
**Senechalle, David A.** Equations which characterize inner product spaces. **47** #7397
**Stanojević, Časlav V.** *See* **Guccione, S. J., Jr., 53** #14096 *and* **Guccione, S. J., Jr., 56** #12854
**Talaljan, F. A.** Rearrangements of series in a Hilbert space. (Russian) **47** #7398
**Thompson, A. C.** Isometric embedding in Hilbert space. **58** #7047
**Torgašev, Aleksandar** A generalization of spaces with inner and semi-inner products. (Serbo-Croatian. English summary) **51** #6377
**Vajzović, Fikret** (*with* Finci, Kalmi) On functionals which are additive on a symmetric set. (Serbo-Croatian summary) **52** #14949
**Vitale, Richard A.** Representation of a crinkled arc. **52** #8893
**Vora, Chandan S.** ★A version of Minty's theorem for a vector space with two Hilbert inner products. **56** #9239
**Weill, Georges G.** Vector space decompositions and the abstract imitation problem. **46** #4181
**Westphal, Ursula** *See* **Berens, Hubert, 58** #23521
**White, Albert G., Jr.** *See* **Diminnie, Charles R., 51** #6375 *and* **Diminnie, Charles R.; et al., 56** #3623

Secondary classifications:

**Allen, G. D.** An extension of Kolmogorov's theorem for continuous covariances. (**47** #1111)
**Antoine, J.-P.** (*with* Grossmann, A.) Partial inner product spaces. I. General properti (**55** #10991a)
(*with* Grossmann, A.) Partial inner product spaces. II. Operators. (**55** #1099
**Bäni, Werner** ★Sesquilineare Formen und lineare Topologien. (**57** #1065)
**Borodjanskiĭ, B. M.** Nonstandard analysis and enlargements of Hilbert spaces. (Russia (**58** #10427)
**Budjanskiĭ, Ju. A.** (*with* Voronin, Ju. A.; Čaškov, A. A.) Some properties of "distance and of similarity measures between sets of objects. (Russian) (**58** #31596)
**Burillo López, Pedro J.** Bounded operators in relation with a decomposition of line manifolds in Hilbert space. (Spanish) (**58** #30352)
**Čanturija, Z. A.** The stability of the orthogonalization process. (Russian. Georgian ar English summaries) (**58** #29806a)
The stability of the orthogonalization process and applications of it. (Russia (**58** #29806b)
**Čaškov, A. A.** *See* **Budjanskiĭ, Ju. A.; et al.,** (**58** #31596)
**Degani Cattelani, Franca** (*with* Fiocchi, Cristina) Spettro simmetrico e rango numeric di un operatore non lineare in spazi con prodotto pseudo-interno. (**58** #2509)
**Eaton, Morris L.** (*with* Olkin, Ingram) Application of the Cauchy-Schwarz inequality t some extremal problems. (**49** #10042)
**Fiocchi, Cristina** *See* **Degani Cattelani, Franca,** (**58** #2509)
**Gallagher, Patrick X.** (*with* Proulx, R. J.) Orthogonal and unitary invariants of familie of subspaces. (**57** #3176)
**Gripenberg, Gustaf** On the accretivity of the inverse of an accretive relation. (**56** #12998)
**Grossmann, A.** *See* **Antoine, J.-P.,** (**55** #10991a) *and* **Antoine, J.-P.,** (**55** #10991b)
**Husain, Taqdir** (*with* Khaleelulla, S. M.) Topologies on generalized semi-inner produc algebras, lattices, and spaces. (**56** #12838)
**Khaleelulla, S. M.** *See* **Husain, Taqdir,** (**56** #12838)
**Obi, Gabriel M. M.** An algebraic closed graph theorem. (**57** #17181)
**Olkin, Ingram** *See* **Eaton, Morris L.,** (**49** #10042)
**Plans, Antonio** Hilbert space. (Spanish) (**45** #20a)
**Proulx, R. J.** *See* **Gallagher, Patrick X.,** (**57** #3176)
**Rosenberger, Bernd** Approximationszahlen, *p*-nukleare Operatoren und Hilbertraumcharakterisierungen. (**51** #1468)
**Tomiyama, Jun** On flows and function algebras. (Japanese) (**58** #30271)
**Voronin, Ju. A.** *See* **Budjanskiĭ, Ju. A.; et al.,** (**58** #31596)
**Weiss, Benjamin** Positive cones in Hilbert space and a maximal inequality. (**49** #5307)

46C99 None of the above, but in this section

**Béllissard, Jean** (*with* Iochum, Bruno; Lima, Ricardo) Cônes autopolaires homogènes et facialement homogènes. (English summary) **55** #1047
**Diminnie, Charles R.** (*with* Gähler, Siegfried; White, Albert G., Jr.) Remarks on generalizations of 2-inner products. **54** #13544
**Gähler, Siegfried** *See* **Diminnie, Charles R.; et al., 54** #13544
**Iochum, Bruno** *See* **Béllissard, Jean; et al., 55** #1047
**Lima, Ricardo** *See* **Béllissard, Jean; et al., 55** #1047
**White, Albert G., Jr.** *See* **Diminnie, Charles R.; et al., 54** #13544

Secondary classifications:

**Fillmore, P. A.** (*with* Williams, J. P.) On operator ranges. (**45** #2518)
**Gross, Herbert** Isomorphisms between lattices of linear subspaces which are induced by isometries. (**57** #9617)
**Janssen, Gerhard** Formal-reelle Jordanalgebren unendlicher Dimension und verallgemeinerte Positivitätsbereiche. (**54** #12846)
**Vasilescu, Florian-Horia** On Lie's theorem in operator algebras. (**47** #295)
**Verozub, L. V.** $\tilde{E}$-spaces. (Ukrainian. English and Russian summaries) (**48** #4736)
**Williams, J. P.** *See* **Fillmore, P. A.,** (**45** #2518)

## 46D05 Spaces with indefinite inner product

**Antoine, J.-P.** (*with* Grossmann, A.) Orthocomplemented subspaces of nondenenerate partial inner product spaces. **57** #1093
**Beem, John K.** A bisector characterization of indefinite inner products. **55** #13222
**Bognár, János** ★Indefinite inner product spaces. **57** #7125
Various norms on indefinite inner product spaces. **53** #8874
Star-algebras induced by non-degenerate inner products. **55** #11012
**Gerisch, W.** Bedingte *J*-Orthonormalbasen und das Verfahren von Bubnov-Galerkin. **52** #14950
**Grossmann, A.** *See* **Antoine, J.-P., 57** #1093
**Hackevič, V. A.** Certain geometric and topological properties of normed spaces with indefinite metric. (Russian) **50** #5436
*See also* **Senderov, V. A., 50** #5437
**Jarchow, Hans** Stetigkeit indefiniter Metriken. **51** #11072
**Markin, S. P.** The decomposability of linear spaces with sesquilinear form. (Russian) **57** #7126
Hermitian sesquilinear forms on a Banach space. (Russian) **58** #23522
**Senderov, V. A.** The rank of positivity of lineals of normed spaces with a *J*-metric. (Russian) **53** #3665
(*with* Hackevič, V. A.) Normed $J_p$-spaces, and certain classes of linear operators in these spaces. (Russian) **50** #5437
The characterization of certain classes of $(H, G)$-spaces. (Russian) **48** #12009
**Sorjonen, Pekka** Pontrjaginräume mit einem reproduzierenden Kern. **53** #8875
**Štraus, V. A.** *G*-orthonormal systems and bases in Hilbert space. (Russian) **50** #960
Continuous hermitian indefinite functions. (Russian) **47** #5568
**Textorius, Björn** A remark on Schwarz's inequality. (Swedish. English summary) **50** #5438

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**Azizov, T. Ja.** The decomposition of a normed space into a direct sum or an approximative sum of special spaces. (Russian) (**47** #5555)
**Hackevič, V. A.** The invariant subspaces of certain classes of linear operators in normed spaces with an indefinite metric. (Russian) (**45** #2517)
**Lander, F. I.** Extensions of isometric shift operators in the Pontrjagin space $\Pi_\varkappa^{(n)}$. (Russian. Armenian summary) (**45** #4197)
**Langer, Heinz** The generalized coresolvents of a $\pi$-isometric operator with unequal defect numbers. (Russian) (**45** #937)
**Masuda, Kyûya** On the existence of invariant subspaces in spaces with indefinite metric. (**45** #4190)
**Sorjonen, Pekka** Über gewisse Tripel von Pontrjagin-Räumen. (**51** #13756)

## 46Exx Function spaces and their duals [For function algebras, see 46J10.]

**(Danskin, John M., Jr.)** *See* **Nikol′skiĭ, S. M., 51** #11073
**De Wilde, Marc** *See* **Garnir, Henry G.; et al., 56** #1039
**Fučík, Svatopluk** *See* **Kufner, Alois; et al., 58** #2189
**Garnir, Henry G.** (*with* De Wilde, Marc; Schmets, Jean) ★Analyse fonctionnelle. Tome III: Espaces fonctionnels usuels. **56** #1039
**John, Oldřich** *See* **Kufner, Alois; et al., 58** #2189
**Kufner, Alois** (*with* John, Oldřich; Fučík, Svatopluk) ★Function spaces. **58** #2189
**Lacey, H. Elton** ★The isometric theory of classical Banach spaces. **58** #12308
**Nikol′skiĭ, S. M.** ★Approximation of functions of several variables and imbedding theorems. **51** #11073
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**Schmets, Jean** *See* **Garnir, Henry G.; et al., 56** #1039
**Differentiable functions** *See* **Studies in the theory of differentiable functions of several variables and its applications, 49** #3512; **Studies in the theory of differentiable functions of several variables and its applications, 49** #5793 *and* **Theory and applications of differentiable functions of several variables, 52** #14951
**Proceedings of the Steklov Institute of Mathematics** *See* **Theory and applications of differentiable functions of several variables, 52** #14951
**Studies in the theory of differentiable functions of several variables and its applications** ★Исследования по теории дифференцируемых функций многих переменных и её приложениям. IV. (Russian) [Studies in the theory of differentiable functions of several variables and its applications. IV] **49** #3512
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**Theory and applications of differentiable functions of several variables** ★Theory and applications of differentiable functions of several variables. V. **52** #14951

Secondary classifications:

**Adamski, Wolfgang** (*with* Gänßler, Peter; Kaiser, Sigurd) On compactness and convergence in spaces of measures. (**53** #3244)
**Dmitriev, V. I.** (*with* Kreĭn, S. G.; Ovčinnikov, V. I.) Fundamentals of the theory of interpolation of linear operators. (Russian) (**58** #30336)
**Gänßler, Peter** *See* **Adamski, Wolfgang; et al.,** (**53** #3244)
**Kaiser, Sigurd** *See* **Adamski, Wolfgang; et al.,** (**53** #3244)
**Kreĭn, S. G.** *See* **Dmitriev, V. I.; et al.,** (**58** #30336)
**Lindenstrauss, Joram** (*with* Tzafriri, Lior) ★Classical Banach spaces. (**54** #3344)
**(Maynard, Hugh B.)** *See* **Vector and operator valued measures and applications,** (**48** #4264)
**(Nikol′skiĭ, N. K.)** *See* **Investigations on linear operators and the theory of functions,** (**50** #12527)
**Ovčinnikov, V. I.** *See* **Dmitriev, V. I.; et al.,** (**58** #30336)
**(Tucker, Don H.)** *See* **Vector and operator valued measures and applications,** (**48** #4264)
**Tzafriri, Lior** *See* **Lindenstrauss, Joram,** (**54** #3344)
**Bibliography:**
**Vector and operator valued measures and applications** Bibliography. (**48** #4265)
**Investigations on linear operators and the theory of functions** ★Исследования по линейным операторам и теории функций. V. (Russian) [Investigations on linear operators and the theory of functions. V] (**50** #12527)
**Linear operators** *See* **Investigations on linear operators and the theory of functions,** (**50** #12527)
**Measures** *See* **Vector and operator valued measures and applications,** (**48** #4264)
**Symposium:**
**Vector and Operator Valued Measures and Applications** *See* **Vector and operator valued measures and applications,** (**48** #4264)
**Theory of functions** *See* **Investigations on linear operators and the theory of functions,** (**50** #12527)
**Vector and operator valued measures and applications** ★Vector and operator valued measures and applications. (**48** #4264)

### 46E05 Lattices of continuous, differentiable or analytic functions

**Abdik, Ahmet** Les points extrémaux fonctionnels d'un compact. **55** #8767
**Aggéri, J. C.** (*with* Lescarret, C.) Fonction d'appui généralisée et son application à l'étude de $\mathcal{C}(\mathbf{R}^n)$. **58** #23523
**Asimow, Leonard** Exposed faces of dual cones and peak-set criteria for function spaces. **49** #11224
**Benkö, Iosif** The extension of certain positive forms on modules. (Romanian. English summary) **49** #3513
**Bernau, S. J.** *See* **Lacey, H. Elton, 49** #5794
**Blatter, Jörg** (*with* Seever, G. L.) Interposition and lattice cones of functions. **55** #11013
**Bliedtner, Jürgen** A note on adapted cones. **56** #6350
**Bogdanowicz, Witold M.** Multipliers for a linear lattice of functions closed under pointwise convergence. (Russian summary) **47** #2324
Characterizations of linear lattices of functions closed under dominated convergence. (Russian summary) **52** #3936
The largest linear lattice of functions in which a $D$-linear lattice forms a solid subset. (Russian summary) **52** #3937
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**Bucur, Gheorghe** Cônes convexes de fonctions continues sur un espace compact. **46** #5999
**Choquet, Gustave** Résultats récents sur les formes positives sur des espaces de fonctions. **57** #17230
Solution d'un problème sur les itères d'un opérateur positif sur $C(K)$. **57** #17231
**Edwards, C. M.** On the monotone $\sigma$-envelope $A(K)$. **51** #13659
**Ellis, Alan J.** Central decompositions for compact convex sets. **52** #1277
**Feldman, William A.** (*with* Porter, J. F.) Compact convergence and the order bidual for $C(X)$. **51** #11074
(*with* Porter, J. F.) A Martinescu structure for vector lattices. **55** #8768
(*with* Porter, J. F.) An inductive limit of order partition spaces. **55** #8769
(*with* Porter, J. F.) A vector lattice topology and function space representation. **57** #3835
**Fuchssteiner, Benno** Maße auf $\sigma$-kompakten Räumen. **51** #3872
When does the Riesz representation theorem hold? **57** #1094
**Goullet de Rugy, Alain** La théorie des cônes biréticulés. (English summary) **54** #8249
**Gran-Rehomme, Michel** Caractérisation du sous-différential d'intégrandes convexes dans les espaces de Sobolev. **58** #12637
**Havnen, Johan** Completely monotonic functions on $n$-dimensional lattices. **50** #8031
**Heideman, N. J. H.** Duality and fractional integration in Lipschitz spaces. **49** #9597
**Hoffmann-Jørgensen, Jørgen** (*with* Ressel, Paul) On completely monotone functions on $C_+(X)$. **56** #9240
**Kalašnikov, A. L.** *See* **Slugin, S. N., 51** #11076
**Kaplan, Samuel** Riemann and Lebesgue integrability. **47** #7399
The unbounded bidual of $C(X)$. **48** #12010
**Koldunov, A. V.** $\sigma$-completion and $o$-completion of $C(B)$. (Russian) **58** #30090
**Kutateladze, S. S.** Weak $H$-convexity. (Russian) **49** #1083
**Lacey, H. Elton** (*with* Bernau, S. J.) Characterizations and classifications of some classical Banach spaces. **49** #5794
**Langford, Eric** Abstract $L$-spaces and the Radon-Nikodým theorem. **48** #4704
**Lescarret, C.** *See* **Aggéri, J. C., 58** #23523
**Malyhina, S. F.** Supremal generators of the space of continuous functions. (Russian) **55** #1048
A condition for the existence of a minimal supremal basis. (Russian) **55** #1049
**Meyer-Nieberg, Peter** Ein verbandstheoretischer Beweis einer Charakterisierung von $L^p$-Räumen. **51** #6378
**Miyazaki, Ken ichi** On a theorem of interpolation for Banach spaces of $(p,q;r)$-absolutely summing operators. **47** #5583
**Müller, Bernd** Dualitätstheorie für Vektorunterverbände von $C_c(X)$. **53** #1237
**Nagel, Alexander** (*with* Rudin, Walter) Riesz decompositions. **57** #3836
**Nagel, Rainer J.** A Stone-Weierstrass theorem for Banach lattices. **48** #6905
**Nara, Chiê** Realizations of the Dedekind completion of $C(X)$. **58** #2190
**Peck, Emily Mann** Lattice projections on continuous function spaces. **56** #1040
**Porter, J. F.** *See* **Feldman, William A., 51** #11074; **Feldman, William A., 55** #8768; **Feldman, William A., 55** #8769 *and* **Feldman, William A., 57** #3835
**Pryce, J. D.** An unpleasant set in a non-locally-convex vector lattice. **48** #2737
**Ressel, Paul** *See* **Hoffmann-Jørgensen, Jørgen, 56** #9240
**Rudin, Walter** *See* **Nagel, Alexander, 57** #3836
**Scheffold, Egon** Ein allgemeiner Korovkin-Satz für lokalkonvexe Vektorverbände. **48** #9365
**Schempp, Walter** A note on Korovkin test families. **47** #7400
**Schirmeier, Ursula** Ein Banach-Stone-Satz für adaptierte Vektorverbände und Algebren. **58** #12309
**Seever, G. L.** *See* **Blatter, Jörg, 55** #11013
**Shannon, Christine** Lattice ideals in the space of continuous functions. **57** #1095
**Sharir, M.** A note on extreme elements in $A_0(K,E)$. **51** #11075
**Slugin, S. N.** (*with* Kalašnikov, A. L.) $K$-minimality of an optimal element and of a minimizing sequence. (Russian) **51** #11076
**Šveĭdel′, A. P.** Supremal generation of monotone functions and upper semi-lattices of $P(H)$ when $H$ is a subspace of the space of continuous functions. (Russian) **58** #30091
**Veksler, A. I.** Conditions for the Banach and Dedekind completeness of certain spaces of continuous functions. (Russian) **53** #14098
**Wright, John David Maitland** Embeddings in vector lattices. **50** #5439

Secondary classifications:

**Aggéri, J. C.** (*with* Lescarret, C.) Fonctions sous-linéaires sur un espace de Riesz. (**58** #30018)
**Ajlani, Marouan** Sur une famille de cônes réticulés avec domination. Les $D$-cônes. (English summary) (**51** #3856)
**Alfsen, Erik M.** ★Compact convex sets and boundary integrals. (**56** #3615)
**Álvarez, Jairo** Linear functionals and local measures. (**51** #13176)
**Berens, Hubert** (*with* Lorentz, Georg Gunther) Theorems of Korovkin type for positive linear operators on Banach lattices. (**49** #5663)
**Blair, Robert L.** Direct decompositions of lattices, rings, and semigroups of continuous functions. (**55** #6353)
**Boboc, Nicu** (*with* Bucur, Gheorghe) ★Conuri convexe de funcţii continue pe spaţii

compacte. (Romanian) [Convex cones of continuous functions on compact spaces] (57 #10406)

**Bucur, Gheorghe** *See* **Boboc, Nicu,** (57 #10406)

**Capon, Michèle** Étude des espaces $A(K)$ qui sont des duaux. (49 #3492)

**Castellano, Laura** Sul metodo delle approssimazioni successive per la risoluzione di un'equazione funzionale. (English summary) (46 #4043)

**Choquet, Gustave** Sur un théorème du type Banach-Steinhaus pour les convexes topologiques. (57 #17199)

**Deo, S. G.** (*with* Murdeshwar, M. G.) On some mixed monotonicity problems. (46 #3918)

**Feldman, William A.** (*with* Porter, J. F.) An application of order partition spaces. (58 #7543)

**Fuchssteiner, Benno** Decomposition theorems. (56 #12825)

(*with* Wright, John David Maitland) Representing isotone operators on cones. (56 #8784)

**Goullet de Rugy, Alain** Representation of Banach lattices. (58 #7022)

**Günzler, Hans** Linear functionals which are integrals. (Italian summary) (50 #7464)

Stonean lattices, measures and completeness. (52 #5926)

**Ivanova, G. Ja.** Ideals and $z$-filters. (Russian) (58 #30107a)

(*with* Popova, G. I.) Properties of ideals of lattice-ordered algebras and their extensions. (Russian) (58 #30107b)

**Jean, Michel** Un cadre abstrait pour l'espace vectoriel topologique ordonné $W^{1,p}(\Omega)$ et quelques uns de ses bornes. (58 #23542)

Some complete lattices of $W^{1,p}(U)$. (Italian summary) (54 #5824)

**Kaplan, Samuel** An example in the space of bounded operators from $C(X)$ to $C(Y)$. (47 #7505)

**Kutateladze, S. S.** Choquet boundaries in $K$-spaces. (Russian) (53 #6277)

**Lacey, H. Elton** (*with* Morris, Peter D.) On spaces of type $A(K)$ and their duals. (58 #30049)

**Lescarret, C.** *See* **Aggéri, J. C.,** (58 #30018)

**Loci, Elizabeth** Compatible tight Riesz orders on $C(X)$. (55 #232)

**Lorentz, Georg Gunther** *See* **Berens, Hubert,** (49 #5663)

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**Popa, Nicolae** Sur le support des fonctionnelles analytiques vectorielles et quelques applications. **48** #4726

**Romanko, G. D.** (*with* Hīmič, Ī. V.) Fourier transformation of a certain class of hyperfunctions and the formulation of the local commutativity condition in the framework of localizable quantum field theory in terms of the hyperfunction. (Russian. English summary) **58** #7077

**Schapira, Pierre** Équations aux dérivées partielles dans l'espace des hyperfonctions. **51** #8815

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**Vuvunikjan, Ju. M.** Fundamental hyperfunctions of evolution operators in a locally convex space. (Russian) **56** #12876

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Équivalence des diverses notions de spectre singulier analytique. (**58** #31293)

**Boutet de Monvel, Louis** Opérateurs pseudo-différentiels analytiques et opérateurs d'ordre infini. (**49** #5939)

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**Cîrnu, Mircea** Laplace transform of distribution and ultradistribution functions. III, IV. (Romanian. English summary) (**51** #3896)

**Čuburin, Ju. P.** Hyperfunctions that depend smoothly on a parameter. (Russian) (**58** #1229)

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Continuità degli operatori analitici quasi-lineari. (English summary) (**46** #2422)

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**Gruman, Lawrence** Some precisions on the Fourier-Borel transform and infinite order differential equations. (**49** #1085)

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**Kaneko, Akira** On the structure of Fourier hyperfunctions. (**55** #3270)

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**(Kenneth, P.)** *See* **Lions, Jacques-Louis; et al.**, (**50** #2672)

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**Ōshima, Toshio** A proof of Ehrenpreis' fundamental principle in hyperfunctions. (**51** #6110)

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**Abdurahmanov, R.** The Hilbert transform in a space of fundamental and generalized functions. (Russian. Tajiki summary) **45** #4068

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**Krée, Paul R.** (*with* Rączka, Ryszard) Kernels and symbols of operators in quantum field theory. **58** #2265

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**Stanković, Bogoljub** On the solvability of algebraic equations in the field of Mikusiński's operators. (**46** #2368)
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**(Lelong, Pierre)** *See* **Séminaire: Pierre Lelong (Analyse), 52** #8930
**Savel'ev, L. Ja.** ★Лекции по математическому анализу. Часть 4. (Russian) [Lectures on mathematical analysis. Part 4] **53** #14119
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**Tasche, Manfred** *See* **Bögel, Karl, 58** #17835
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**(Costé, Alain)** *See* **Intégration vectorielle et multivoque**, (**52** #3457)
**(Fattorini, H.)** *See* **Schwartz, Jacob T.**, (**55** #6457 (EA **55/56**) )
**(Karcher, Hermann)** *See* **Schwartz, Jacob T.**, (**55** #6457 (EA **55/56**) )
**(Kölzow, Dietrich)** *See* **Measure theory**, (**55** #8284) *and* **Measure theory**, (**55** #8285)
**(Lelong, Pierre)** *See* **Séminaire: Pierre Lelong (Analyse)**, (**50** #6733)
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**Conference:**
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**eeman, J. M.** On the classification of operator identities. (**47** #2218)

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**Domar, Yngve** On the analytic transform of bounded linear functionals on certain Banach algebras. (**52** #3885)

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**Yabuta, Kôzô** A note on extremum problems in abstract Hardy spaces. **46** #9746

On bounded functions in the abstract Hardy space theory. II. **58** #30278

On abstract $H^\infty$ spaces. (Japanese) **56** #16382

On bounded functions in the abstract Hardy space theory. III. **58** #30279

On abstract Hardy spaces. (Japanese) **58** #30280

On the distributions of bounded functions in the abstract Hardy space theory and some of their applications. **55** #11054 (E **57** #7185)

Kolmogorov's inequalities in the abstract Hardy space theory. **58** #23617

Correction to: "On the distributions of bounded functions in the abstract Hardy space theory and some of their applications" (Tôhoku Math. J. (2) **29** (1977), no. 1, 137–155). **57** #7185

**anagihara, Niro** Generators and maximal ideals in some algebras of holomorphic functions. **52** #3555

**alcman, Lawrence** $H^\infty + C$. **53** #6329

**ame, William R.** Algebras of analytic functions in the plane. **52** #3965

Uniform algebras on plane domains. **58** #12391

*See also* **Birtel, Frank T.**, **46** #4208

**interhof, Peter** Carlesonmengen und Fixpunkte schlichter Funktionen. **58** #30281

**iskind, Steven** Interpolating sequences and the Shilov boundary of $H^\infty(\Delta)$. **55** #3795

**sidó, László** Hardy spaces associated to one-parameter groups (of *-automorphisms). **57** #1132

**nalytic functions** *See* **Spaces of analytic functions**, **57** #3865

**ristiansand** *See* **Spaces of analytic functions**, **57** #3865

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**Functional Analysis and Function Theory** *See* **Spaces of analytic functions**, **57** #3865

**paces of analytic functions** ★Spaces of analytic functions. **57** #3865

Secondary classifications:

**Adachi, Kenzō** On the spectrum of the space of bounded holomorphic functions on strongly pseudoconvex domains in $C^n$. (**48** #6466)

**Ahern, Patrick** (*with* Schneider, Robert B.) Isometries of $H^\infty$. (**56** #5936)

**Arias de Reyna Martínez, Juan** Closed Abel algebras. (Spanish) (**57** #16629)

**Behrens, Michael Frederick** The maximal ideal space of algebras of bounded analytic functions on infinitely connected domains. (**55** #8380)

**Berkson, Earl** (*with* Porta, Horacio) One-parameter groups of isometries on Hardy spaces of the torus. (**54** #5903)

**Bezivin, Jean-Paul** Interpolation et idéaux de fonctions analytiques bornées. (**57** #3452)

**Bochnak, Jacek** Remarques sur le problème de la division. (**45** #1900)

**(Brooks, Robert M.)** *See* **Symposium: Several Complex Variables**, (**45** #5401)

**Brown, Léon** (*with* Schreiber, Bertram M.; Taylor, B. Alan) Spectral synthesis and the Pompeiu problem. (French summary) (**50** #4979)

**Bryskin, I. B.** Invariant subspaces of the shift operator in spaces of the type of Hardy classes. (Russian) (**47** #4025)

**Campbell, Stephen L.** Operator-valued inner functions analytic on the closed disc. (**49** #3567)

**Carleson, Lennart** Projections métriques de $L^p$ sur $H^p$. (**47** #7293)

**Chao, Jia Arng** Maximal singular integral transforms on local fields. (**51** #11023)

**Clark, Douglas N.** Some star-invariant subspaces in two variables. (**50** #5500)

**Csordas, George** A note on the Silov boundary and the cluster sets of a class of functions in $H^\infty$. (**51** #3473)

**Davie, A. M.** (*with* Wilken, Donald R.) An extension of Melnikov's theorem. (**50** #621)

(*with* Øksendal, Bernt K.) Peak interpolation sets for some algebras of analytic functions. (**46** #9394)

(*with* Stray, Arne) Interpolation sets for analytic functions. (**47** #2071)

(*with* Gamelin, Theodore W.; Garnett, John B.) Distance estimates and pointwise bounded density. (**47** #2068)

**Debiard, Amédée** (*with* Gaveau, Bernard) Potentiel fin et algèbres de fonctions analytiques. (**50** #2533)

(*with* Gaveau, Bernard) Potentiel fin et algèbres de fonctions. III. (**56** #8908)

**Deeb, Waleed M.** Distinguished sequences in $B$-domains. (Arabic summary) (**58** #6282)

**Downum, Philip B.** Cyclic extensions of Banach algebras. (**56** #3349)

**Ebenstein, Samuel E.** Some $H^p$ spaces which are uncomplemented in $L^p$. (**47** #7339)

**Ellis, Alan J.** Central decompositions and the essential set for the space $A(K)$. (**47** #3948)

**Fel'dman, G. M.** Primary ideals of the algebra $W_+$. (Russian) (**45** #3736)

**Ferrier, Jean-Pierre** ★Spectral theory and complex analysis. (**50** #5446)

Idéaux de fonctions holomorphes avec poids et calcul fonctionnel. (**51** #10690)

**Gamelin, Theodore W.** Peak points for algebras on circled sets. (**58** #22663)

*See also* **Davie, A. M.; et al.**, (**47** #2068)

**Garnett, John B.** Vitushkin's localization operator. (**53** #8432)

*See also* **Davie, A. M.; et al.**, (**47** #2068)

**Gaveau, Bernard** *See* **Debiard, Amédée**, (**50** #2533) *and* **Debiard, Amédée**, (**56** #8908)

**Gavrilov, V. I.** (*with* Lëvšina, G. D.) Linear functionals over Lipschitz spaces of holomorphic functions in the unit disc. (Russian) (**57** #13460)

**Goodman, Roe W.** Differential operators of infinite order on a Lie group. II. (**45** #2102)

**Gruman, Lawrence** Les classes de Hardy et de Nevanlinna généralisées. (**48** #6459)

**Havin, V. P.** The spaces $H^\infty$ and $L^1/H_0^1$. (Russian) (**50** #965)

**Hayashi, Mikihiro** Smoothness of analytic functions at boundary points. (**54** #13083)

**Heal, E. R.** (*with* Windham, M. P.) Finitely generated $F$-algebras with applications to Stein manifolds. (**50** #13605)

**Helson, Henry** Flows on tori. (**51** #1293)

Compact groups with ordered duals. IV. (**47** #7340)

**Hoffmann, Laurence D.** Radial limit sets on the torus. (**48** #9270)

**Horowitz, Charles** (*with* Oberlin, Daniel M.) Restriction of $H^p$ functions to the diagonal of $U^n$. (**50** #7583)

**Hruščëv, S. V.** (*with* Širokov, N. A.) A remark on a theorem of V. P. Gurariĭ. (Russian) (**49** #7464)

**Kahane, Jean-Pierre** Projections métriques dans $L^1(T)$. (**47** #7292)

Two problems on $H^p$ classes. (**58** #12321)

**Kamowitz, Herbert** The spectra of endomorphisms of algebras of analytic functions. (**58** #2426)

The spectra of a class of operators on the disc algebra. (**58** #2427)

**Khanh, Bui Doan** Les $A$-mesures sur le tore de deux dimensions et le calcul symbolique de deux contractions permutables. (**50** #14308)

**Krasičkov-Ternovskiĭ, I. F.** Methods for the approximation of functions belonging to invariant subspaces by Dirichlet polynomials. (Russian) (**54** #10624)

**Latter, Robert H.** A characterization of $H^p(\mathbf{R}^n)$ in terms of atoms. (**58** #2198)

**Leśniewicz, R.** On linear functionals in Hardy-Orlicz spaces. I, II. (**58** #23534a)

On linear functionals in Hardy-Orlicz spaces. III. (**58** #23534b)

**Lëvšina, G. D.** *See* **Gavrilov, V. I.**, (**57** #13460)

**Lund, Bruce** Subalgebras of finite codimension in the algebra of analytic functions on a Riemann surface. (**50** #13561)

**Miles, Joseph** A factorization theorem in $H^1(U^3)$. (**51** #10659)

**Muhly, Paul S.** A note on analytic measures. (**51** #10531)

Inner functions and isometries. (**53** #1325)

**Nagel, Alexander** (*with* Rudin, Walter) Moebius-invariant function spaces on balls and spheres. (**54** #13135)

**Neville, Charles W.** Invariant subspaces of Hardy classes on infinitely connected open surfaces. (**58** #28516)

**Nordgren, Eric A.** The ring $N^+$ is not adequate. (**49** #11287)

**Noverraz, Philippe** Generators for some rings of analytic functions. (**51** #10673)

**Oberlin, Daniel M.** *See* **Horowitz, Charles**, (**50** #7583)

**O'Farrell, Anthony G.** Analytic capacity, Hölder conditions and $\tau$-spikes. (**50** #13562)

**Øksendal, Bernt K.** *See* **Davie, A. M.**, (**46** #9394)

**de Paepe, P. J.** Homomorphism spaces of algebras of holomorphic functions. (**56** #668)

**Pełczyński, A.** ★Banach spaces of analytic functions and absolutely summing operators. (**58** #23526)

**Porta, Horacio** *See* **Berkson, Earl**, (**54** #5903)

**Power, Stephen** $H^\infty(R)+AP$ is closed. (**56** #6357)

**van der Put, Marius** The non-archimedean corona problem. (**51** #939)

**Richards, Ian** Axioms for analytic functions. (**55** #10701)

**Roberts, James W.** (*with* Stoll, Manfred) Composition operators on $F^+$. (**55** #8773)

(*with* Stoll, Manfred) Correction to the paper: "Prime and principal ideals in the algebra $N^+$" (Arch. Math. (Basel) **27** (1976), 387–393). (**58** #11454)

**Rochberg, Richard** The Banach-Mazur distance between function algebras on degenerating Riemann surfaces. (**56** #15956)

**Rosay, Jean-Pierre** Sur la caractérisation de certaines algèbres de fonctions par les parties réelles de leurs éléments. (English summary) (**51** #932)

**Rossi, H.** (*with* Taylor, Joseph L.) On algebras of holomorphic functions on finite pseudoconvex manifolds. (**58** #6345)

**Rudin, Walter** Harmonic analysis in polydiscs. (**54** #10643)

Lumer's Hardy spaces. (**56** #3338)

Peak-interpolation sets of class $C^1$. (**58** #6346)

*See also* **Nagel, Alexander**, (**54** #13135)

**Samohin, M. V.** Automorphic analytic functions with a given modulus for the boundary values. (Russian) (**55** #3240)

**Schneider, Robert B.** Isometries of $H^p(U^n)$. (**47** #2089)

Extreme points in $H^1(U^n)$. (**51** #5955)

*See also* **Ahern, Patrick**, (**56** #5936)

**Schreiber, Bertram M.** *See* **Brown, Léon; et al.**, (**50** #4979)

**Schubert, C. F.** The corona theorem as an operator theorem. (**58** #2428)

**Seničkin, V. N.** The approximation of functions of several complex variables by polynomials on fat compact subsets of the space $\mathbf{C}^n$. (Russian) (**53** #877)

**Shapiro, Joel H.** Subspaces of $L^p(G)$ spanned by characters: $0<p<1$. (**57** #17123)

**Sibony, Nessim** (*with* Wermer, John) Generators for $A(\Omega)$. (**54** #7856)

Un exemple de compact polynomialement convexe dans $C^2$. (**52** #8498)

**Širokov, N. A.** *See* **Hruščëv, S. V.**, (**49** #7464)

**Skoda, Henri** Application des techniques $L^2$ à la théorie des idéaux d'une algèbre de fonctions holomorphes avec poids. (**48** #11571)

**Stoll, Manfred** The space $N_*$ of holomorphic functions on bounded symmetric domains. (**54** #5488)

*See also* **Roberts, James W.**, (**55** #8773) *and* **Roberts, James W.**, (**58** #11454)

**Stout, Edgar Lee** ★The theory of uniform algebras. (**54** #11066)

**Stray, Arne** Mergelyan and Farrel sets. (**50** #10277)

Pointwise bounded approximation by functions satisfying a side condition. (**50** #10276)

Approximation and interpolation for some spaces of analytic functions in the unit disc. (**55** #10698)

*See also* **Davie, A. M.**, (**47** #2071)

**Swanton, Donald W.** Compact composition operators on $B(D)$. (**53** #11420)

**Taylor, B. Alan** *See* **Brown, Léon; et al.**, (**50** #4979)

**Taylor, Joseph L.** *See* **Rossi, H.**, (**58** #6345)

**Tumanov, A. E.** A peak set of metric dimension 2.5 for an algebra of holomorphic functions on a three-dimensional sphere in $\mathbf{C}^2$. (Russian) (**58** #6349)

**Vasilescu, Florian-Horia** Generalized Hardy spaces. (Romanian. English summary) (**51** #1361)

**Vituškin, A. G.** Uniform approximations by holomorphic functions. (Russian) (**58** #6350)

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**Walsh, T.** On weighted $H^p$ spaces. (**46** #7536)

**Weinstock, Barnet M.** Approximation by holomorphic functions on certain product sets in $C^n$. (**49** #9262)

**Weiss, Max L.** Some $H^\infty$-interpolating sequences and the behavior of certain of their Blaschke products. (**51** #8435)

**Wermer, John** *See* **Sibony, Nessim**, (**54** #7856)

**Wilken, Donald R.** *See* **Davie, A. M.**, (**50** #621)

**Windham, M. P.** *See* **Heal, E. R.**, (**50** #13605)

**Wortman, Dennis H.** Interpolating sequences on convex curves in the open unit disc. (**50** #13538)
**Yabuta, Kôzô** Funktionen mit nichtnegativem Realteil in abstrakten Hardyalgebren. (**49** #5377)
On bounded functions in the abstract Hardy space theory. (**52** #5982)
**Zame, William R.** Analytic structure in some analytic function algebras. (**56** #3350)
**Zapata, Guido I.** ★Sur le problème de Bernstein et les algèbres de fonctions continûment différentiables. (**52** #6287)
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**Several Complex Variables** ★Symposium on several complex variables, Park City, Utah, 1970. (**45** #5401)

### 46J20 Ideals, maximal ideals, boundaries

**Abel, M. A.** The connectedness of the maximal ideal space of the algebra of bounded continuous $A$-valued functions. (Russian) **51** #1406
**Adler, Andrew** (*with* Williams, R. Douglas) Transferring results from rings of continuous functions to rings of analytic functions. **50** #10822
**Arizmendi Peimbert, Hugo** On the closed ideals of a Banach algebra. (Spanish) **50** #10823
**Blum, Werner** Über kommutative nichtarchimedische Banachalgebren. **51** #8831
**Bohnke, Georges** Sur les idéaux primaires fermés stables par automorphismes linéaires. **49** #3551
**Bollobás, Béla** Normally subregular systems in normed algebras. **49** #3552
**Brandstein, Alfred G.** Compact 2-manifolds as maximal ideal spaces. **48** #2778
**Briggs, James M.** Finitely generated ideals in regular $F$-algebras. **57** #10429
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**Choda, Hisashi** (*with* Nakamura, Masahiro) Elementary proofs of Gleason-Kahane-Zelazko's theorem for $B^*$-algebras. **46** #9747
**Cohen, Simon** A measure induced metric topology for a Banach algebra. **48** #6944
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**Fel'dman, G. M.** The semisimplicity of an algebra generated by an isometric operator. (Russian) **50** #14245
**Fujita, Noriko** A characterization of unit-boundaries in finitely generated Banach algebras. **48** #876
**Gorin, E. A.** Spectral stability of certain Banach algebras. (Russian) **50** #14246
**Helemskiĭ, A. Ja.** The global dimension of a Banach function algebra is different from one. (Russian) **53** #1273
**Hirashita, Yukio** (*with* Wada, Junzō) The local maximum modulus principle for function spaces. **51** #8832
**Hruščëv, S. V.** Every ideal of the ring $C_A^n$ is principal. (Russian. English summary) **58** #30282
**Huffman, Alice A.** Lifting isomorphisms between $l$-ideals of $\Phi$-algebras. **58** #7101
**Kelleher, James J.** (*with* Taylor, B. Alan) Closed ideals in locally convex algebras of analytic functions. **46** #6046
**Lai, Han Ch'ing** Banach algebras which are ideals in a Banach algebra. **53** #1274
**Leibowitz, Gerald M.** ★Lectures on complex function algebras. **55** #1072
**Limaye, Balmohan V.** Boundaries for real Banach algebras. **52** #15022
**Lindahl, Lars-Åke** On ideals of joint topological divisors of zero. **51** #13693
**Nakamura, Masahiro** *See* **Choda, Hisashi, 46** #9747
**Nishizawa, Kiyoko** On a unit-boundary of a function algebra. **46** #4211
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**Ortega Aramburu, Joaquín M.ª** Grassmann topology on the closed ideals of finite codimension of a commutative Banach algebra. (Spanish) **54** #8297
A characterization of local Banach algebras of finite dimension. (Spanish. English summary) **56** #12893
**Osadčiĭ, M. M.** The algebras $L_n^2(\Gamma)$, and the lattice of closed ideals of these algebras. (Russian) **51** #1407
**Raeburn, Iain** The relationship between a commutative Banach algebra and its maximal ideal space. **56** #16383
**Read, Thomas T.** The powers of a maximal ideal in a Banach algebra and analytic structure. **55** #8804
**Rennison, J. F.** Functionals with rational transforms on a commutative Banach algebra. **54** #11069
**Robbins, David A.** A constructive proof of Gelbaum's theorem on tensor products. **48** #6945
**Słodkowski, Zbigniew** On ideals consisting of joint topological divisors of zero. **50** #1003
**Srinivasan, V. K.** On the ideal structure of the algebra of all entire functions over complete non-archimedean valued fields. **49** #5854
**Taylor, B. Alan** *See* **Kelleher, James J., 46** #6046
**Wada, Junzō** *See* **Hirashita, Yukio, 51** #8832
**Warner, C. Robert** (*with* Whitley, Robert) A characterization of regular maximal ideals. **54** #3420
**Whitley, Robert** *See* **Warner, C. Robert, 54** #3420
**Williams, R. Douglas** Primary ideals in rings of analytic functions. **47** #9294
*See also* **Adler, Andrew, 50** #10822
**Żelazko, Wiesław** On a certain class of non-removable ideals in Banach algebras. **47** #2376
Concerning a problem of Arens on removable ideals in Banach algebras. **49** #11263

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**Baker, J. W.** Convolution algebras with discrete spectra. (**47** #714)
**Escassut, Alain** Spectres d'algèbres de Banach $p$-adiques. (**57** #3859)
**Glasner, Moses** Šilov boundaries of spaces of functions with noncompact domains. (**45** #2161)
**Huckleberry, Alan T.** (*with* Stoll, Wilhelm) On the thickness of the Shilov bounda (**49** #3210)
**Makažanova, T. H.** Some criteria for the Šilov boundary. (Russian) (**58** #30051)
**Matheson, A. L.** Closed ideals in rings of analytic functions satisfying a Lipsch condition. (**57** #3864)
**Neville, Charles W.** Invariant subspaces of Hardy classes on infinitely connected op surfaces. (**58** #28516)
**Smith, Harvey A.** Commutative twisted group algebras. (**51** #792)
**Stoll, Wilhelm** *See* **Huckleberry, Alan T.,** (**49** #3210)
**Tonev, Toma V.** Cohomotopy groups $\pi^{n,n-1}$ of the space of maximal ideals. (Russia (**55** #1096)
**Warner, C. Robert** A class of spectral sets. (**53** #14025)
**Wermer, John** Subharmonicity and hulls. (**52** #14376)

### 46J25 Representations

**Abel, M. A.** The algebra of bounded continuous functions with values in a commutati Banach algebra with unity. (Russian. Estonian and English summaries) **52** #3966
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Certain properties of algebras of functions with values in a Banach algebr (Russian. Estonian and English summaries) **52** #3968
Maps between algebras of bounded continuous $A$-valued functions. (Russia English and loose Russian summaries) **54** #3421
(*with* Heringson, È.) Certain properties of the algebra $C_0(X,A)$. (Russian. Estonian and English summaries) **54** #3422
**Amar, Éric** Représentations d'algèbres d'opérateurs. (English summary) **51** #11116
**Baskakov, A. G.** Spectral analysis of the representations of commutative Banach algebras. (Russian) **57** #7186
**Domar, Yngve** (*with* Lindahl, Lars-Åke) Three spectral notions for representations c commutative Banach algebras. (French summary) **53** #3714
**Gaşpar, Dumitru** On operator representations of function algebras. **46** #2435
Spectral $\rho$-dilations for the representations of function algebras. (Romania summary) **48** #4744
On a certain class of representations of function algebras. **46** #6047
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Darstellungen von Funktionenalgebren der Klasse $C_0$. **52** #3970
**Heringson, È.** *See* **Abel, M. A., 54** #3422
**Khanh, Bui Doan** La théorie spectrale et les représentations d'algèbres de Dirichle (English summary) **54** #938
**Leland, Kenneth O.** Algebras of analytic operator valued functions. **51** #13694
**Lindahl, Lars-Åke** *See* **Domar, Yngve, 53** #3714
**Mlak, W.** Partitions of spectral sets. **46** #673
Operator valued representations of function algebras. **52** #15023
**Suciu, Ion** Functional models for positive maps on $C(X)$. **52** #15024
**Szafraniec, Franciszek Hugon** Some spectral properties of operator-valued representations of function algebras. **46** #674
Orthogonal decompositions of non-contractive operator valued representations c Banach algebras. (Russian summary) **46** #2437
Decompositions of non-contractive operator-valued representations of Banac algebras. **46** #675
**Szpunar, Wanda** Doubly commuting operator representations of Dirichlet algebra **49** #7785

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**Abel, M. A.** Decomposability of the algebra of bounded continuous $A$-valued function (Russian. Estonian and English summaries) (**52** #3969)
**Abrahamse, M. B.** (*with* Douglas, Ronald G.) Operators on multiply connected domains. (**51** #1437)
**Douglas, Ronald G.** *See* **Abrahamse, M. B.,** (**51** #1437)
**Kaniuth, Eberhard** Die Struktur der regulären Darstellung lokalkompakter Gruppen m invarianter Umgebungsbasis der Eins. (**45** #2082)
**Khanh, Bui Doan** Représentation hilbertienne des algèbres de fonctions. (**45** #945)
**Koh, Kwangil** On a representation of a strongly harmonic ring by sheaves. (**47** #862

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**Džanašija, G. A.** (*with* Oziašovili, T. S.) The decomposability of a commutative norme ring into a direct sum of subrings. (Russian. Georgian summary) **53** #11383
**Forelli, Frank** A theorem on isometries and the application of it to the isometries c $H^p(S)$ for $2<p<\infty$. **47** #7443
**Fujita, Noriko** Extension of maximal ideals in commutative normed algebras. **58** #23618
**Lumer, Gunter** On some results concerning uniform approximation. **54** #939
**Oziašovili, T. S.** *See* **Džanašija, G. A., 53** #11383

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**Gorin, E. A.** (*with* Zolotarevskiĭ, V. M.) Maximal invariant subalgebras in algebras wit involution. (Russian) (**46** #9751)
**Zolotarevskiĭ, V. M.** *See* **Gorin, E. A.,** (**46** #9751)

### 46J35 Structure, classification

**Abel, M. A.** The invertibility of sequences and infinite matrices. (Russian. Estonian an English summaries) **46** #7906
**Baskakov, A. G.** Spectral synthesis in commutative strongly regular Banach algebra (Russian) **57** #13503

**jörk, Jan-Erik** Compact groups operating on Banach algebras. **48** #6946
**randenburg, L. H.** On identifying the maximal ideals in Banach algebras. **51** #13695
**ales, H. G.** (*with* McClure, J. P.) Completion of normed algebras of polynomials. **53** #3715
**aly, John T.** On Liouville $F$-algebras. **46** #9748
**avie, A. M.** Quotient algebras of uniform algebras. **48** #2779
**omar, Yngve** Primary ideals in Beurling algebras. **47** #2377
    On spectral synthesis in commutative Banach algebras using closed ideals of finite co-dimension. **52** #11605
**orin, E. A.** Spectrally stable Banach algebras. (Russian) **57** #13504
    Several remarks in connection with Gel'fand's theorems on the group of invertible elements of a Banach algebra. (Russian) **58** #2309
**in, V. Ja.** Holomorphic fiberings and multivalued functions of elements of a Banach algebra. (Russian) **47** #7444
**oy, Richard J.** Continuity of derivations on topological algebras of power series. **54** #3423
    Banach algebras of power series. **50** #10824
**McClure, J. P.** *See* **Dales, H. G.**, **53** #3715
**Miller, John Boris** Analytic structure and higher derivations on commutative Banach algebras. **51** #13696
**Varšavskiĭ, A. D.** A certain method of constructing nonlocal algebras. (Russian) **46** #2438
**Ylinen, Kari** The maximal ideal space of a Banach algebra of multipliers. **46** #9749

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**Barnes, Bruce Alan** Banach algebras which are ideals in a Banach algebra. (**46** #9738)
**Dixon, P. G.** A characterisation of closed subalgebras of $B(H)$. (**55** #11070)
**Prolla, João Bosco** On operator-induced topologies. (**52** #8863)
**Robbins, David A.** Toward a generalization of the Gel'fand transform. (**50** #998 (E **52** #6432) )
    Corrigendum to: "Toward a generalization of the Gel'fand transformation" (Nieuw. Arch. Wisk. (3) **22** (1974), 138–142). (**52** #6432)
**Schultz, Henry J.** Systems of derivations on topological algebras of power series. (**51** #11112)

## 46J99 None of the above, but in this section

**Abellanas, Pedro** The theorem of the primitive element for some differentiable algebras. **47** #841
**Bachman, George** (*with* Beckenstein, Edward; Narici, Lawrence) Function algebras over valued fields. **47** #5605
**Beckenstein, Edward** *See* **Bachman, George; et al.**, **47** #5605
**Behncke, Horst** Functions acting in weighted Orlicz algebras. **58** #12392
**Bezivin, Jean-Paul** Interpolation et idéaux de fonctions analytiques bornées sur un disque. (English summary) **52** #15025
**Bhaskaran, R.** (*with* Naik-Nimbalkar, U.) Banach algebras of Lipschitz functions over valued fields. **58** #2310
**Bishop, E. R.** Corrections: "Generalizėd Lipschitz algebras". **47** #842
**Brown, Gavin** (*with* Moran, William) On the Silov boundary of a measure algebra. **45** #2494
**Busby, Robert C.** (*with* Schochetman, Irwin E.) Compact induced representations. **45** #2495
    (*with* Schochetman, Irwin E.; Smith, Harvey A.) Integral operators and the compactness of induced representations. **45** #4167
**Byčkov, B. M.** (*with* Grober, V. M.) The absence of unconditional bases in quotient spaces that are generated by Dirichlet algebras. (Russian) **58** #2311
**Čebotarev, G. N.** A new proof of the Wiener-Pitt theorem. (Russian) **58** #30283
**Cohen, Paul J.** A counterexample to the closed graph theorem for bilinear maps. **49** #7787
**Dunkl, Charles F.** Singular integrals on ultraspherical series. **45** #2496
**Edwards, Robert E.** (*with* Price, John F.) A naively constructive approach to boundedness principles, with applications to harmonic analysis. **45** #2497 (E **50** #14153)
**Escassut, Alain** Propriétés spectrales en analyse non archimédienne. **53** #8908
    Partitions naturelles et calcul fonctionnel spectral en algèbre de Banach non archimédienne. (English summary) **53** #6330
**Fields, Jerry W.** (*with* Sisarcick, Wood C.) A Banach algebra of entire functions. **57** #1133
**Fragoulopoulou, Maria** On a Bochner's type theorem in topological algebras. **58** #30284
**Grober, V. M.** *See* **Byčkov, B. M.**, **58** #2311
**Gültekin Büyükyenerel, K.** Loose bundles of Banach algebras over fields with valuation. (Turkish summary) **46** #7907
**Hager, Anthony W.** (*with* Nanzetta, Philip; Plank, Donald) Inversion in a class of lattice-ordered algebras. **46** #4212
**Hery, William J.** Maximal ideals in algebras of topological algebra valued functions. **55** #8805
**Hewitt, Edwin** Factorization in Banach algebras and Banach modules. **45** #2498
    Factorization in Banach algebras and Banach modules. (Russian. Georgian summary) **45** #2499
**Leinert, Michael** Beitrag zur Theorie der verallgemeinerten $\mathcal{L}^1$-Algebren. **45** #5776
**Leland, Kenneth O.** Maximum modulus theorems for algebras of operator valued functions. **46** #9750
**Li, L. H. Yip** *See* **Souchek, J.**, **47** #4005
**Lust-Piquard, F.** La propriété de Stone-Weierstrass dans les algèbres tensorielles. **46** #2439
**Magid, Andy R.** Algebraically separable extensions of Banach algebras. **50** #2922
**Magnier, Patrick** (*with* Rimbaud, Jean-Claude) Caractérisation et propriétés de stabilité des semialgèbres semi-réticulées inférieurement de $\mathcal{C}(X)$. **49** #9636
**McClure, J. P.** Automatic continuity of functional calculus for vector-valued functions. **46** #2440
**Moran, William** *See* **Brown, Gavin**, **45** #2494
**Naik-Nimbalkar, U.** *See* **Bhaskaran, R.**, **58** #2310
**Nanzetta, Philip** *See* **Hager, Anthony W.; et al.**, **46** #4212
**Narici, Lawrence** *See* **Bachman, George; et al.**, **47** #5605
**Plank, Donald** *See* **Hager, Anthony W.; et al.**, **46** #4212
**Prenter, P. M.** A Weierstrass theorem for real, separable Hilbert spaces. **55** #6193
**Price, John F.** *See* **Edwards, Robert E.**, **45** #2497 (E **50** #14153)
**Rimbaud, Jean-Claude** *See* **Magnier, Patrick**, **49** #9636
**Schochetman, Irwin E.** *See* **Busby, Robert C.**, **45** #2495 *and* **Busby, Robert C.; et al.**, **45** #4167
**Sheil-Small, T. B.** On the convolution of analytic functions. **47** #9295
**Shimizu, Tetsuhiro** On the Williamson's conjecture. **45** #4168
**Sisarcick, Wood C.** *See* **Fields, Jerry W.**, **57** #1133
**Smith, Harvey A.** *See* **Busby, Robert C.; et al.**, **45** #4167
**Smith, R. R.** On non-unital Jordan-Banach algebras. **57** #7187
**Souchek, J.** (*with* Li, L. H. Yip) Structure of rings of functions with Riemann Stieltjes convolution products. **47** #4005
**Warren, Hugh E.** Analytic equivalence in the disk algebra. **48** #12066
**Wright, John David Maitland** (*with* Youngson, M. A.) A Russo-Dye theorem for Jordan $C^*$-algebras. **58** #7102
**Yabuta, Kôzô** M. Riesz's theorem in the abstract Hardy space theory. **58** #12393
**Youngson, M. A.** *See* **Wright, John David Maitland**, **58** #7102

Secondary classifications:

**Agranovskiĭ, M. L.** Invariant algebras on noncompact Riemannian symmetric spaces. (Russian) (**47** #2276)
**Benedetto, John J.** Ensembles de Helson et synthèse spectrale. (**45** #820)
**Bohnke, Georges** Synthèse des sphères pour l'algèbre de Sobolev. (**53** #6240)
**Bragard, G. K.** (*with* Nessel, Rolf Joachim) On the comparison of approximation processes in Banach algebras. (**53** #3566)
**Chébli, Houcine** Sur la positivité des opérateurs de "translation généralisée" associés à un opérateur de Sturm-Liouville sur $[0,\infty]$. (**46** #7969)
**Chiţescu, Ion** Köthe spaces that are Banach algebras with unit. (**56** #16356)
**Dhombres, Jean G.** ★Sur les opérateurs multiplicativement liés. (**58** #30450)
    Moyennes de fonctions et opérateurs multiplicativement liés. (**52** #1402)
**Dunkl, Charles F.** (*with* Ramirez, Donald E.) Existence and nonuniqueness of invariant means on $\mathcal{L}^\infty(\hat{G})$. (**45** #5668)
**Escassut, Alain** Algèbres d'éléments analytiques en analyse non archimédienne. (**51** #10671)
    Spectre maximal d'une algèbre de Krasner. (**58** #22659)
**Garandel, Gérard** Les semi-normes multiplicatives sur les algèbres d'éléments analytiques au sens de Krasner. (**52** #11112)
**Grabiner, Sandy** Weighted shifts and Banach algebras of power series. (**52** #8982)
**Helton, Jon C.** Product integrals and exponentials in commutative Banach algebras. (**47** #5190)
**Kandelaki, T. K.** The equivalence of the categories of vector bundles and projective modules of finite type over a Banach algebra. (Russian. Georgian and English summaries) (**55** #13423)
**Keshava Murthy, G. N.** (*with* Unni, K. R.) On a class of functions satisfying the Lipschitz condition. (**47** #3967)
**Kunz, K. S.** Application of an algebraic technique to the solution of Laplace's equation in three dimensions. (**47** #615)
**Leblanc, Noël** Algèbres de Banach associées à un opérateur différentiel de Sturm-Liouville. (**52** #8552)
**Maserick, P. H.** Moments of measures on convex bodies. (**56** #12786)
**Merrien, Jean** *See* **Tougeron, Jean-Claude**, (**58** #17185)
**Nemirovskiĭ, A. S.** On the general theory of the Lévy-Laplace operator. (Russian) (**58** #30213a)
    The Laplace-Lévy operator on a certain class of functions. (Russian) (**58** #30213b)
**Nessel, Rolf Joachim** *See* **Bragard, G. K.**, (**53** #3566)
**van der Put, Marius** Difference equations over $p$-adic fields. (**48** #11914)
**Ramirez, Donald E.** *See* **Dunkl, Charles F.**, (**45** #5668)
**Rogalski, Marc** ★Espaces de Banach réticulés et problème de Dirichlet. (**58** #30026)
**Sīkirjavii, V. Ja.** The operator of quasidifferentiation, and related boundary value problems. (Russian) (**58** #30219)
    Boundary value problems for a multiplicatively generated quasidifferentiation operator. (Russian) (**58** #30220c)
    Boundary value problems for a multiplicatively generated quasidifferentiation operator. (Russian) (**58** #30220a)
    A family of means and the quasidifferentiation operator generated by it. (Russian) (**58** #30220b)
    Sufficient conditions for the existence of the Gâteaux-Lévy means. (Russian) (**58** #30222a)
    Fundamental domains for the Laplace operator in Hilbert space. (Russian) (**58** #30222b)
**Šilov, G. E.** On the theory of means for functions on the Hilbert ball. (Russian) (**58** #30221)
**Tasche, Manfred** Operatorenrechnung in einer Algebra. (**57** #13401)
**Taylor, Joseph L.** Inverses, logarithms, and idempotents in $M(G)$. (**45** #5669)
**Tougeron, Jean-Claude** (*with* Merrien, Jean) Idéaux de fonctions différentiables. II. (English summary) (**58** #17185)
**Unni, K. R.** *See* **Keshava Murthy, G. N.**, (**47** #3967)
**Wigley, Neil M.** The Duhamel product of analytic functions. (**49** #608)
**Bull. Soc. Math. France Mém.** *See* **Dhombres, Jean G.**, (**58** #30450)

## 46Kxx Rings and algebras with an involution

Secondary classifications:

**Bonsall, Frank F.** (*with* Duncan, John) ★Complete normed algebras. (**54** #11013)
**Duncan, John** *See* **Bonsall, Frank F.**, (**54** #11013)

## 46K05 Ideals, subalgebras

**Alexander, Freda E.** Some counter-examples on annihilator, dual, and complemented $A^*$-algebras. **50** #2923
The bidual of $A^*$-algebras of the first kind. **52** #6438
**Al-Moajil, Abdullah H.** The commutants of relatively prime powers in Banach algebras. **53** #11384
**Alò, Richard A.** (*with* Cheney, Charles A.; de Korvin, André) An abstract Radon-Nikodym theorem. **47** #5606
**Araki, Huzihiro** (*with* Elliott, George A.) On the definition of $C^*$-algebras. **50** #8085 (E **52** #3975)
**Aupetit, Bernard H.** Continuité du spectre dans les algèbres de Banach avec involution. (English summary) **51** #11117
Continuité uniforme du spectre dans les algèbres de Banach avec involution. (English summary) **55** #8806
Le théorème de Russo-Dye pour les algèbres de Banach involutives. (English summary) **55** #13243
**Barnes, Bruce Alan** Locally $B^*$-equivalent algebras. **45** #5763
Locally $B^*$-equivalent algebras. II. **47** #9296
**Behncke, Horst** Nilpotent elements in Banach algebras. **47** #4006
**Bojadžiev, Hristo N.** Characterization of $B^*$-equivalent Banach algebras by means of their positive cones. **58** #2312
**Bonsall, Frank F.** (*with* Stirling, D. S. G.) Square roots in Banach *-algebras. **47** #843
Jordan algebras spanned by Hermitian elements of a Banach algebra. **54** #13577
**Cheney, Charles A.** *See* **Alò, Richard A.; et al.**, **47** #5606
**Chilana, Ajit Kaur** (*with* Lata, Suman) Some properties of the double centraliser algebra with the strict topology. **58** #12394
**Chō, Muneo** A characterization of multiplicative linear functionals on complex *-algebras. **54** #941
**Collins, H. S.** (*with* Fontenot, Robert A.) Approximate identities and the strict topology. **47** #2378
**Cuntz, Joachim** Locally $C^*$-equivalent algebras. **56** #6398
**Dales, H. G.** Exponentiation in Banach star algebras. **54** #5840
**Davenport, John W.** The strict dual of $B^*$-algebras. **58** #30285
**Dixon, P. G.** Generalized $B^*$-algebras. II. **46** #4214
**Doran, Robert S.** A generalization of a theorem of Civin and Yood on Banach *-algebras. **46** #2442
(*with* Wichmann, Josef) The Gelfand-Naimark theorems for $C^*$-algebras. **58** #12395
**Dubois-Violette, Michel** A generalization of the classical moment problem on *-algebras with applications to relativistic quantum theory. II. **55** #13244
**Elliott, George A.** *See* **Araki, Huzihiro**, **50** #8085 (E **52** #3975)
**Fontenot, Robert A.** *See* **Collins, H. S.**, **47** #2378
**Gorin, E. A.** (*with* Zolotarevskiĭ, V. M.) Maximal invariant subalgebras in algebras with involution. (Russian) **46** #9751
**Harris, Lawrence A.** Banach algebras with involution and Möbius transformations. **50** #5480
**Husain, Taqdir** (*with* Malviya, B. D.) On semi-inner product spaces. II. **48** #6947
(*with* Warsi, S. A.) Representations of $BP^*$-algebras. **55** #3796
(*with* Warsi, S. A.) Positive functionals on BP*-algebras. **56** #6399
**Jenkins, J. W.** Nonsymmetric group algebras. **49** #5855
**Jurzak, Jean-Paul** Une application d'une théorème de Dixmier. (English summary) **58** #23619
**Kannan, D.** Expectations in normed *-algebras. **47** #4007
**de Korvin, André** *See* **Alò, Richard A.; et al.**, **47** #5606
**Lata, Suman** Double centraliser algebra with the strict topology. **58** #17859
*See also* **Chilana, Ajit Kaur**, **58** #12394
**Leptin, Horst** On symmetry of some Banach algebras. **51** #6432
Symmetrie in Banachschen Algebren. **54** #5841
**Limaye, Balmohan V.** (*with* Shirali, Satish) Korovkin's theorem for positive functionals on *normed algebras. **58** #12396
**Malviya, B. D.** A problem concerning weakly completely continuous $A^*$-algebras. **49** #1128
Finite dimensionality and duality of $B^*$-algebras. **58** #30286
On locally $C^*$-algebras. **50** #8086
A note on complemented Banach *-algebras. **52** #11606
On complemented Banach *-algebras. **53** #14144
*See also* **Husain, Taqdir**, **48** #6947
**McCharen, Edith A.** A characterization of dual $B^*$-algebras. **46** #6048
**Mocanu, Gh.** A representation theorem for the space of Hermitian elements in a Banach algebra. **57** #10430
**Moodie, James** Some modules over a $B^*$-algebra. **56** #16384
**Murphy, I. S.** A note on $B^*$-algebras. **48** #9405
**Namsraj, Nasanbujangijn** On ideals and quotients of Hermitian algebras. **55** #13245
**Ono, Tamio** Polar decomposition in a $B^*$-algebra. (Japanese. English summary) **48** #6948
Note on a $B^*$ algebra. II. (Japanese. English summary) **47** #2379
Note on a $B^*$-algebra. III. (Japanese. English summary) **50** #2924
**Page, Warren** Characterizations of $B^*$ and $A^*$-algebras. **48** #6949
**Palmer, Theodore W.** Hermitian Banach *-algebras. **45** #7481
The reducing ideal is a radical. **47** #5607
Jordan *-homomorphisms between reduced Banach *-algebras. **52** #6439
**Paschke, William L.** Inner product modules over $B^*$-algebras. **50** #8087
**Pták, Vlastimil** Banach algebras with involution. **50** #5481
Hermitian algebras. (Russian summary) **47** #7445
Banach algebras with involution. **45** #5764
**Sawoń, Zbigniew** Positively definite functionals in Banach algebras. (Russian summary) **47** #4008
**Saworotnow, Parfeny P.** Integral as a certain type of a positive definite function. **45** #7482
**Sebestyén, Zoltán** On the definition of $C^*$-algebras. **51** #11118 (EA **54**) (EA **52**)
Some local characterization of boundedness and of $C^*$-equivalent algebra
**54** #11070
On a problem of Araki and Elliott. **54** #13578
**Shirali, Satish** Extension of positive functionals. **57** #1134
*See also* **Limaye, Balmohan V.**, **58** #12396
**Štěrbová, Dina** On the spectral radius in locally multiplicatively convex topologica
algebras. (Czech and Russian summaries) **58** #30287
**Stirling, D. S. G.** *See* **Bonsall, Frank F.**, **47** #843
**Tiller, Wayne** $P$-commutative Banach *-algebras. **48** #877
**Tomita, Shun-ichi** On the linear maps which are multiplicative on complex *-algebras
**56** #3639
**Tomiuk, Bohdan J.** Modular annihilator $A^*$-algebras. **47** #5608
(*with* Wong, Pak Ken) Weakly semi-completely continuous $A^*$-algebras. **47** #5609
**Warsi, S. A.** *See* **Husain, Taqdir**, **55** #3796 *and* **Husain, Taqdir**, **56** #6399
**Watanabe, Seiji** A remark on linear mappings on Banach *-algebras. **49** #5856
**Wichmann, Josef** Hermitian *-algebras which are not symmetric. **50** #8088
The symmetric radical of an algebra with involution. **58** #2313
*See also* **Doran, Robert S.**, **58** #12395
**Wildfogel, Dennis** Annihilator Banach *-algebras and the Peter-Weyl theorem. **53** #14145
**Wong, Pak Ken** Modular annihilator $A^*$-algebras. **46** #4213
A minimax formula for dual $B^*$-algebras. **55** #1076
On certain subalgebras of a dual $B^*$-algebra. **56** #3640 (EA **57**)
*See also* **Tomiuk, Bohdan J.**, **47** #5609
**Yood, Bertram** Commutativity properties in Banach *-algebras. **50** #14247
**Youngson, M. A.** A Vidav theorem for Banach Jordan algebras. **58** #12397
**Zolotarevskiĭ, V. M.** *See* **Gorin, E. A.**, **46** #9751

Secondary classifications:

**Barnes, Bruce Alan** Linear functional continuous on Abelian *-subalgebras of a $B^*$-algebra. (**51** #11120)
**Bonsall, Frank F.** (*with* Duncan, John) ★Numerical ranges. II. (**56** #1063)
**Busby, Robert C.** Centralizers of twisted group algebras. (**48** #11920)
**Cohen, Simon** An inner product for a Banach algebra. (Italian summary) (**47** #3997)
**Curtis, Philip C., Jr.** (*with* Stetkaer, Henrik) A factorization theorem for analytic functions operating in a Banach algebra. (**46** #9735)
**(Dal Soglio-Hérault, L.)** *See* **Fell, James M. G.**, (**56** #15825)
**(Douady, Adrien)** *See* **Fell, James M. G.**, (**56** #15825)
**Duncan, John** *See* **Bonsall, Frank F.**, (**56** #1063)
**Espelie, M. Solveig** Multiplicative and extreme positive operators. (**49** #1212)
**Fell, James M. G.** ★Induced representations and Banach *-algebraic bundles. (**56** #15825)
**Fragoulopoulou, Maria** On a Bochner's type theorem in topological algebras. (**58** #30284)
**Haïnis, Ioannis Th.** Une loi multiplicative des grands nombres. (**58** #24458)
**Jenkins, J. W.** Free semigroups and unitary group representations. (**47** #395)
**Laffey, Thomas J.** Square zero subalgebras of algebras. (**55** #8078)
**Maeda, Shûichirô** On the distance between two projections in a $C^*$-algebra. (**56** #9273)
**Maltese, George** Extensions of pure states in normed spaces. (**58** #17796)
**McKilligan, Sheila A.** Duality in $B^*$-algebras. (**48** #4740)
**Mosak, Richard D.** ★Banach algebras. (**54** #3406)
**Ruziev, Dž.** Generalized singular equations in normed rings with involution. (Russian) (**58** #23675)
**Sawoń, Zbigniew** Some remarks about the three spaces problem in Banach algebras. (**57** #7174)
**Srinivasacharyulu, Kilambi** Remarks on Banach algebras. (**51** #11114)
**Stetkaer, Henrik** *See* **Curtis, Philip C., Jr.**, (**46** #9735)
**Uhlmann, A.** Relative entropy and the Wigner-Yanase-Dyson-Lieb concavity in an interpolation theory. (**57** #18671)
**Wood, Alexander W.** Numerical range and generalized $B^*$-algebras. (**55** #11044)

## 46K10 Representations

**Barnes, Bruce Alan** Strictly irreducible *-representations of Banach *-algebras. **46** #2441
Representations of $B^*$-algebras on Banach spaces. **49** #7788
When is a representation of a Banach ∗-algebra Naimark-related to a ∗-representation? **56** #16385
**Brooks, Robert M.** On representing $F^*$-algebras. **46** #9752
**Giellis, George R.** A characterization of Hilbert modules. **47** #9297
**Gol'dšteĭn, M. Š.** Decomposition of representations of commutative ∗-algebras into a direct sum of strongly cyclic representations. (Russian) **56** #1078
**Husain, Taqdir** (*with* Malviya, B. D.) Representations of locally $m$-convex *-algebras. **48** #9406
**Inoue, Atsushi** Unbounded representations of symmetric ∗-algebras. **55** #11055
**Ismagilov, R. S.** *See* **Naĭmark, M. A.**, **54** #3424
**Kerov, S. V.** Duality of finite-dimensional *-algebras. (Russian. English summary) **50** #10825
**Leptin, Horst** Darstellung verallgemeinerter $L^1$-Algebren. II. **51** #6433
**Malviya, B. D.** *See* **Husain, Taqdir**, **48** #9406
**Mildner, R.** Absorbierend-konvexe topologische Algebren. **55** #3797
**Moore, Steven M.** Locally convex ∗-algebras. (Spanish summary) **58** #17860
Quasi-covariant representations of nuclear ∗-algebras. (Spanish summary) **58** #30288
**Naĭmark, M. A.** (*with* Ismagilov, R. S.) Representations of groups and algebras in spaces with indefinite metric. (Russian) **54** #3424
**Palmer, Theodore W.** *-Representations of $U^*$-algebras. **53** #14146

**owell, James D.** Representations of locally convex *-algebras. **50** #14248
**owers, Robert T.** Selfadjoint algebras of unbounded operators. II. **48** #12067
**rzybylski, Bronisław** Representations of commutative algebras, and spectral theory. (Polish. English summary) **48** #12068
**owlands, K.** A note on multiplier operators and dual $B^*$-algebras. **53** #1275
**ebestyén, Zoltán** On extendibility of *-representations from *-ideals. **58** #2314
**asil'ev, A. M.** The theory of representations for a topological (non-Banach) algebra with involution. (Russian. English summary) **57** #13505

Secondary classifications:

**lfsen, Erik M.** (*with* Shultz, Frederic W.) State spaces of Jordan algebras. (**57** #12630)
**rzumanjan, V. A.** *-representations of inverse semigroups. (Russian. Armenian and English summaries) (**58** #17689)
**arnes, Bruce Alan** (*with* Duncan, John) The Banach algebra $l^1(S)$. (**51** #13587)
**orisov, N. V.** Topological properties of a commutant of a field algebra representation. (Russian. English summary) (**57** #18583)
**Duncan, John** *See* **Barnes, Bruce Alan**, (**51** #13587)
**Fell, James M. G.** A new look at Mackey's imprimitivity theorem. (**53** #13471)
**Funakosi, Shunsuke** Borel structure in topological *-algebras and their duals. (**51** #10533)
  On representations of topological *-algebras and σ-compact Lie groups. (**55** #3166)
**Maserick, P. H.** Spectral theory of operator-valued transformations. (**49** #7828)
**Maxwell, George** Representation of algebras with involution. (**45** #8688)
**Shultz, Frederic W.** *See* **Alfsen, Erik M.**, (**57** #12630)
**Takesaki, Masamichi** Duality and von Neumann algebras. (**53** #704)
**Todorov, Todor Stefanov** Discussion of a theorem of R. T. Powers. (Russian summary) (**56** #1090)
**Uhlmann, A.** The "transition probability" in the state space of a *-algebra. (**54** #11072)
**Wawrzyńczyk, Antoni** Reciprocity theorems in the theory of representations of groups and algebras. (**56** #534)

## 46K15 Hilbert algebras

**Bachelis, Gregory F.** (*with* McCoy, James W.) Left centralizers of an $H^*$-algebra. **48** #12069
**van Daele, Alfons** A new approach to the Tomita-Takesaki theory of generalized Hilbert algebras. **49** #11264
**Inoue, Atsushi** Unbounded Hilbert algebras as locally convex *-algebras. **57** #17297
**Kervin, Michael R. W.** The trace-class of a full Hilbert algebra. **47** #7446
**Kuriyama, Ken** On left Hilbert algebras with respect to Minkowski forms. **55** #8807
  Remarks on left Hilbert algebras with respect to Minkowsky forms. **58** #17861a
  Crossed products of left Hilbert algebras with respect to Minkowsky forms. **58** #17861b
**Lance, E. Christopher** Direct integrals of left Hilbert algebras. **51** #8833
**McCoy, James W.** *See* **Bachelis, Gregory F.**, **48** #12069
**Ono, Tamio** Deformation of set of projections. (Japanese. English summary) **49** #7789
  In a finite AW*-algebra $x^*x < xx^*$ implies $x^*x = xx^*$. (Japanese. English summary) **49** #1129
**Oshobi, E. O.** Preservation of the trace. **57** #1135
  Norm-decreasing isomorphisms of the trace-class algebras of $H^*$ algebras. **58** #2315
**Phillips, John** Positive integrable elements relative to a left Hilbert algebra. **53** #1276
  Complementation for right ideals in generalized Hilbert algebras. **52** #6440
  A note on square-integrable representations. **52** #15026
**Rousseau, Ronny** The left Hilbert algebra associated to a semi-direct product. **56** #16386
**Saworotnow, Parfeny P.** A characterization of Hilbert modules. **56** #16387
  Daniell construction for an $H^*$-algebra valued measure. **53** #14147
**Smith, James F.** The $p$-classes of an $H^*$-algebra. **48** #879
  The $p$-classes of a Hilbert module. **46** #9753
**Sutherland, Colin E.** Direct integral theory for weights, and the Plancherel formula. **49** #3553
**Száz, Árpád** On the multiplier extension of commutative $H^*$-algebras. **57** #1136
**Takesaki, Masamichi** States and automorphism groups of operator algebras. **54** #5842
**Tomiuk, Bohdan J.** Multipliers and duality in $A^*$-algebras. **51** #8834
**Wong, Pak Ken** *-actions in $A^*$-algebras. **48** #878
**Yood, Bertram** Hilbert algebras as topological algebras. **52** #1329

Secondary classifications:

**Barnes, Bruce Alan** Algebras with minimal left ideals which are Hilbert spaces. (**45** #895)
**Eckmann, Jean-Pierre** (*with* Osterwalder, Konrad) An application of Tomita's theory of modular Hilbert algebras: duality for free Bose Fields. (**49** #10284)
**Gilbert, Robert Pertsch** (*with* Hile, Gerald N.) Hilbert function modules with reproducing kernels. (**58** #30106)
**Hile, Gerald N.** *See* **Gilbert, Robert Pertsch**, (**58** #30106)
**Inoue, Atsushi** On a class of unbounded operator algebras. (**58** #23641a)
  On a class of unbounded operator algebras. II. (**58** #23641b)
  On a class of unbounded operator algebras. III. (**58** #23641c)
**Osterwalder, Konrad** *See* **Eckmann, Jean-Pierre**, (**49** #10284)
**Saitô, Kazuyuki** On the embedding as a double commutator in a type I $AW^*$-algebra. II. (**50** #1011)
**Wong, Pak Ken** The $p$-class in a dual $B^*$-algebra. (**50** #10837)

## 46K99 None of the above, but in this section

**Araki, Huzihiro** On quasifree states of the canonical commutation relations. II. **47** #2388
**Berkson, Earl** Prehermitian elements and $B^*$-algebras. **45** #907
**Braun, Robert Burkhard** (*with* Kaup, Wilhelm; Upmeier, Harald) A holomorphic characterization of Jordan $C^*$-algebras. **58** #12398
**Devapakkiam, C. Viola** Hilbert space methods in the theory of Jordan algebras. I. 52 #1330
**Gol'dšteĭn, M. Š.** *See* **Sarymsakov, T. A.**, **54** #942
**Hackenbroch, Wolfgang** Extremale Sesquilinearformen und der Satz von Bochner-Schwartz. **45** #9150
**Iwanik, Anzelm** Multiplicative operators on symmetric commutative algebras. **57** #1137
**Kaup, Wilhelm** *See* **Braun, Robert Burkhard; et al.**, **58** #12398
**Laison, Diane** On $W^*$ embedding of $AW^*$-algebras. **46** #6049
**Malviya, B. D.** (*with* Tomiuk, B. J.) Multiplier operators on $B^*$-algebras. **46** #4215
**Palmer, Theodore W.** Characterizations of $w^*$-homomorphisms and expectations. **50** #14249
**Paschke, William L.** Completely positive maps on $U^*$-algebras. **45** #9151
**Sarymsakov, T. A.** (*with* Gol'dšteĭn, M. Š.) Partially ordered involutive algebras. (Russian) **54** #942
**Smith, James F.** The structure of Hilbert modules. **50** #10826
**Tomiuk, B. J.** (*with* Wong, Pak Ken) Annihilator and complemented Banach *-algebras. **46** #4216
  Multipliers on dual $A^*$-algebras. **55** #6194
  *See also* **Malviya, B. D.**, **46** #4215
**Upmeier, Harald** *See* **Braun, Robert Burkhard; et al.**, **58** #12398
**Wichmann, Josef** On the symmetry of matrix algebras. **52** #8947 (EA 53)
**Wong, Pak Ken** *See* **Tomiuk, B. J.**, **46** #4216
**Yuen, Yvonne** Groups of invertible elements of Banach algebras. **46** #6050

Secondary classifications:

**Araki, Huzihiro** (*with* Shiraishi, Masafumi) On quasifree states of the canonical commutation relations. I. (**47** #2387)
**Bognár, János** Star-algebras induced by non-degenerate inner products. (**55** #11012)
**Bös, Wolfgang** Direct integrals of selfdual cones and standard forms of von Neumann algebras. (**55** #1086)
**Busby, Robert C.** On the equivalence of twisted group algebras and Banach *-algebraic bundles. (**47** #4018)
**Gilbert, Robert Pertsch** (*with* Hile, Gerald N.) Reproducing kernels for generalized Hilbert function spaces. (**55** #8776)
**Hile, Gerald N.** *See* **Gilbert, Robert Pertsch**, (**55** #8776)
**Holland, Samuel S., Jr.** *See* **Maeda, Shûichirô**, (**53** #8121)
**Kerimov, T. M.** A certain regularization for a general singular operator. (Russian. Azerbaijani summary) (**46** #689)
**Kohls, Carl W.** (*with* Reynolds, William H.) Embedding rings with a maximal cone and rings with an involution in quaternion algebras. (**47** #1857)
**Laßner, Gerd** Über Realisierungen gewisser *-Algebren. (**46** #7922)
**Maeda, Shûichirô** (*with* Holland, Samuel S., Jr.) Equivalence of projections in Baer *-rings. (**53** #8121)
**Piziak, Robert** Involution rings and projections. I. (**47** #4878)
**Reynolds, William H.** *See* **Kohls, Carl W.**, (**47** #1857)
**Shiraishi, Masafumi** *See* **Araki, Huzihiro**, (**47** #2387)

## 46Lxx Rings and algebras of operators, with or without involution [For other algebraic systems of operators, see 47Dxx.]

**Bunce, John W.** (*with* Deddens, James A.) A family of simple $C^*$-algebras related to weighted shift operators. **51** #1410
**(Chambon, C.)** *See* **Guichardet, Alain**, **50** #5483
**(Combes, François)** *See* **Guichardet, Alain**, **50** #5483
**(Dang Ngoc Nghiem)** *See* **Guichardet, Alain**, **50** #5483
**Deddens, James A.** *See* **Bunce, John W.**, **51** #1410
**Dixmier, Jacques** ★Les algèbres d'opérateurs dans l'espace hilbertien (algèbres de von Neumann). **50** #5482
**(Enock, Michel)** *See* **Guichardet, Alain**, **50** #5483
**Guichardet, Alain** ★Systèmes dynamiques non commutatifs. **50** #5483
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**(Ledrappier, François)** *See* **Guichardet, Alain**, **50** #5483
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**Beiträge:**
  **Theorie Nichtnormierbarer Topologischer Algebren** ★Beiträge zur Theorie nichtnormierbarer topologischer Algebren. **54** #3425
**Topological algebras** *See* **Beiträge: Theorie Nichtnormierbarer Topologischer Algebren**, **54** #3425

Secondary classifications:

**Behrens, Ernst-August** ★Ringtheorie. (**52** #457)
**(Boroń, Leo F.)** *See* **Naĭmark, M. A.**, (**50** #8075)
**Chen, Etang** On the duality of local observables. (**53** #2185)
**(Hofmann, Karl Heinrich)** *See* **Recent advances in the representation theory of rings and $C^*$-algebras by continuous sections**, (**49** #7063)
**Hugenholtz, N. M.** Operator algebras in quantum statistical mechanics. (**58** #14662)
**(Kastler, Daniel)** *See* **$C^*$-algebras and their applications to statistical mechanics and quantum field theory**, (**54** #9902)
**(Liukkonen, John R.)** *See* **Recent advances in the representation theory of rings and**

$C^*$-algebras by continuous sections, (49 #7063)

**Naĭmark, M. A.** ★Нормированные кольца. (Russian) [Normed rings] (**50** #8076)

★Normed rings. (**50** #8075)

**(Topping, David M.)** *See* **Lectures: Operator algebras**, (49 #10497)

**$C^*$-algebras and their applications to statistical mechanics and quantum field theory** ★$C^*$-algebras and their applications to statistical mechanics and quantum field theory. (**54** #9902)

**International School of Physics "Enrico Fermi"** *See* **$C^*$-algebras and their applications to statistical mechanics and quantum field theory**, (**54** #9902)

**Lectures:**

**Application of sheaves to ring theory** ★Lectures on the applications of sheaves to ring theory. (49 #10498)

**Operator algebras** ★Lectures on operator algebras. (49 #10497)

**Operator algebras** *See* **Theory of operators and operator algebras**, (49 #7801) *and* **Lectures: Operator algebras**, (49 #10497)

**Operator theory** *See* **Lectures: Operator algebras**, (49 #10497) *and* **Lectures: Application of sheaves to ring theory**, (49 #10498)

**Quantum field theory** *See* **$C^*$-algebras and their applications to statistical mechanics and quantum field theory**, (**54** #9902)

**Recent advances in the representation theory of rings and $C^*$-algebras by continuous sections** ★Recent advances in the representation theory of rings and $C^*$-algebras by continuous sections. (49 #7063)

**Representation of rings and $C^*$-algebras by continuous sections** *See* **Recent advances in the representation theory of rings and $C^*$-algebras by continuous sections**, (49 #7063)

**Ring theory** *See* **Lectures: Operator algebras**, (49 #10497) *and* **Lectures: Application of sheaves to ring theory**, (49 #10498)

**Seminar:**

**Representation of Rings and $C^*$-Algebras by Continuous Sections** *See* **Recent advances in the representation theory of rings and $C^*$-algebras by continuous sections**, (49 #7063)

**Sheaves** *See* **Lectures: Application of sheaves to ring theory**, (49 #10498)

**Spectral theory** *See* **Symposium: Spectral Theory**, (**50** #5499)

**Statistical mechanics** *See* **$C^*$-algebras and their applications to statistical mechanics and quantum field theory**, (**54** #9902)

**Symposium:**

**Spectral Theory** ★Spectral Theory Symposium (March 1974). (**50** #5499)

**Theory of operators and operator algebras** ★Teoria operatorilor şi algebre de operatori. (Romanian) [The theory of operators and operator algebras] (49 #7801)

**Tulane University Ring and Operator Theory Year** *See* **Lectures: Operator algebras**, (49 #10497) *and* **Lectures: Application of sheaves to ring theory**, (49 #10498)

### 46L05 $C^*$-algebras (= $B^*$-algebras) [See also 22D25.]

**Aizenman, Michael** (*with* Davies, Edward B.; Lieb, Elliott H.) Positive linear maps which are order bounded on $C^*$ subalgebras. **57** #13506

**Akemann, Charles A.** A Gelfand representation theory for $C^*$-algebras. **48** #6950

(*with* Rosenfeld, Melvin) Maximal one-sided ideals in operator algebras. **47** #7447

(*with* Dodds, Peter G.; Gamlen, John L. B.) Weak compactness in the dual space of $C^*$-algebra. **49** #9637

(*with* Pedersen, Gert Kjaergård) Complications of semicontinuity in $C^*$-algebra theory. **50** #10827

(*with* Pedersen, Gert Kjaergård; Tomiyama, Jun) Multipliers of $C^*$-algebras. **57** #10431

(*with* Elliott, George A.; Pedersen, Gert Kjaergård; Tomiyama, Jun) Derivations and multipliers of $C^*$-algebras. **54** #13579

(*with* Ostrand, Phillip A.) Computing norms in group $C^*$-algebras. **56** #1079

(*with* Ostrand, Phillip A.) The spectrum of a derivation of a $C^*$-algebra. **53** #14148

(*with* Pedersen, Gert Kjaergård) Ideal perturbations of elements in $C^*$-algebras. **57** #13507

**Albeverio, Sergio A.** (*with* Høegh-Krohn, Raphael J.) Dirichlet forms and Markov semigroups on $C^*$-algebras. **57** #1138

**Alfsen, Erik M.** (*with* Shultz, Frederic W.) Non-commutative spectral theory for affine function spaces on convex sets. **54** #943

**Alò, Richard A.** (*with* Cheney, Charles A.; de Korvin, André) Martingales in Banach *-algebras. **51** #13697

**Anantharaman-Delaroche, Claire** ★Extensions des $C^*$-algèbres. **58** #30290

**Anderson, Joel** Derivation ranges and the identity. **48** #880

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On vector states and separable $C^*$-algebras. **56** #6400

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**Antonevič, A. B.** The Gel′fand representation of a certain ring of operators. (Russian) **51** #11119

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**Archbold, Robert J.** Prime $C^*$-algebras and antilattices. **46** #7908

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**Arveson, William** ★An invitation to $C^*$-algebras. **58** #23621

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**Arzumanjan, V. A.** Factor-states on crossed products that are constructed in terms of a dynamical system. (Russian. Armenian and English summaries) **52** #6441

**Barnes, Bruce Alan** Pure states with the restriction property. **45** #4157

Linear functional continuous on Abelian *-subalgebras of a $B^*$-algebra. **51** #11120

The similarity problem for representations of a $B^*$-algebra. **51** #8835

**Batty, Charles J. K.** Derivations of tensor products of $C^*$-algebras. **57** #17298

**Behncke, Horst** Topics in $C^*$- and von Neumann algebras. **55** #13246

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$C^*$-algebras with a completely ordered system of ideals. **58** #30289

(*with* Krauß, Fritz; Leptin, Horst) $C^*$-Algebren mit geordneten Ideal Folg **49** #5857

(*with* Leptin, Horst) $C^*$-algebras with a two-point dual. **53** #3716

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(*with* Leptin, Horst) Classification of $C^*$-algebras with a finite dual. **49** #963

(*with* Cuntz, Joachim) Local completeness of operator algebras. **55** #1077

**Berger, C. A.** (*with* Coburn, L. A.; Lebow, Arnold) $C^*$-algebras generated by commuting isometries. I. **51** #11121

**Berglund, M. C. F.** Ideal $C^*$-algebras. **48** #881

**Bernard, Alain** Algèbres non autoadjointes de champs continus d'opérateurs. **52** #11607

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**Birrell, I. D.** Maximal simple $C^*$-algebras. I. **51** #1409

**Blackadar, Bruce E.** Infinite tensor products of $C^*$-algebras. **58** #23622

Weak expectations and injectivity in operator algebras. **57** #7188

**Bonnet, Pierre** Une théorie spectrale dans certains espaces du type $A(K)$. (Englis summary) **53** #6332

**Borchers, Hans-Jürgen** Über $C^*$-Algebren mit lokalkompakten Symmetriegruppen. **50** #5486

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**Bratteli, Ola** Inductive limits of finite dimensional $C^*$-algebras. **47** #844

Structure spaces of approximately finite-dimensional $C^*$-algebras. **50** #1005

(*with* Robinson, Derek W.) Unbounded derivations of $C^*$-algebras. **51** #13698

Self-adjointness of unbounded derivations on $C^*$-algebras. **56** #9272

(*with* Robinson, Derek W.) Unbounded derivations of $C^*$-algebras. II. **52** #11608

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(*with* Herman, Richard H.; Robinson, Derek W.) Quasianalytic vectors and derivations of operator algebras. **56** #6401

**Breuer, Manfred** (*with* Butcher, R. S.) Fredholm theories of mixed type with analytic index functions. **51** #6434

**Brown, Lawrence G.** (*with* Douglas, Ronald G.; Fillmore, P. A.) Extensions of $C^*$-algebras, operators with compact self-commutators, and $K$-homology. **49** #1126

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(*with* Green, Philip; Rieffel, Marc A.) Stable isomorphism and strong Morit equivalence of $C^*$-algebras. **57** #3866

**Bulinskiĭ, A. V.** On the question of the classes of $C^*$-algebras that satisfy the Haag-Kastler axioms. (Russian. English summary) **57** #10432

**Bunce, John W.** Characterizations of amenable and strongly amenable $C^*$-algebras **47** #9298

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(*with* Deddens, James A.) Irreducible representations of the $C^*$-algebra generated by an $n$-normal operator. **46** #6051

(*with* Deddens, James A.) $C^*$-algebras generated by weighted shifts. **49** #5858

(*with* Deddens, James A.) $C^*$-algebras with Hausdorff spectrum. **53** #8911

(*with* Salinas, Norberto) Completely positive maps on $C^*$-algebras and the lef matricial spectra of an operator. **55** #3798

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**Butcher, R. S.** *See* **Breuer, Manfred**, **51** #6434

**Cheney, Charles A.** *See* **Alò, Richard A.; et al.**, **51** #13697

**Ching, Wai Mee** Topologies on the quasi-spectrum of a $C^*$-algebra. **51** #3910

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**Choda, Hisashi** On freely acting automorphisms of operator algebras. **50** #10828

**Choda, Marie** (*with* Kasahara, Isamu; Nakamoto, Ritsuo) Dependent elements of a automorphism of a $C^*$-algebra. **49** #5859

**Choi, Man Duen** Positive linear maps on $C^*$-algebras. **47** #4009

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**Christensen, Frank** Non-commutative integration for monotone sequentially closed $C^*$ algebras. **47** #9299

**Chu, Cho Ho** Prime faces in $C^*$-algebras. **48** #882

On convexity theory and $C^*$-algebras. **56** #12895

**Coburn, L. A.** $C^*$-algebras generated by semi-groups of isometries. **50** #14250

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**Combes, François** Quelques propriétés des $C^*$-algèbres. **46** #6052

**Conway, John B.** On the Calkin algebra and the covering homotopy property. **53** #3717

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**Cooper, James Bell** Extended $C^*$-algebras and $W^*$-algebras. **55** #8808

**Cortet, Jean-Claude** États $G$-factoriels. **50** #14251

**Crabb, Michael J.** (*with* Duncan, John; McGregor, Colin M.) Characterizations o

commutativity for $C^*$-algebras. **50** #14252
**raw, Ian G.** Axiomatic cohomology of operator algebras. **48** #2780
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**an Daele, Alfons** The upper envelope of invariant functionals majorized by an invariant weight. **49** #1130
**auns, John** The primitive ideal space of a $C^*$-algebra. **49** #1131
**avidson, Kenneth R.** (*with* Fong, Che Kao) An operator algebra which is not closed in the Calkin algebra. **57** #3869
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**eddens, James A.** *See* **Bunce, John W.**, **46** #6051; **Bunce, John W.**, **49** #5858 *and* **Bunce, John W.**, **53** #8911
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**ixmier, Jacques** ★$C^*$-алгебры и их представления. (Russian) [$C^*$-algebras and their representations] **50** #5484
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**Dodds, Peter G.** *See* **Akemann, Charles A.; et al.**, **49** #9637
**Dooley, A. H.** The spectral theory of posets and its applications to $C^*$-algebras. **54** #5844
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**Duncan, John** (*with* Taylor, P. J.) Norm inequalities for $C^*$-algebras. **56** #12896
*See also* **Crabb, Michael J.; et al.**, **50** #14252
**Dupré, Maurice J.** Hilbert bundles with infinite dimensional fibres. **50** #10829
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**Embry, Mary R.** Self adjoint strictly cyclic operator algebras. **50** #2927
**Enomoto, Masatoshi** (*with* Tamaki, Kazuhiro) Freely acting automorphisms of abelian $C^*$-algebras. **50** #10830
**Ernest, John** On the topology of the spectrum of a $C^*$-algebra. **53** #8913
**Evans, David E.** Positive linear maps on operator algebras. **54** #8298
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**Fack, Thierry** (*with* Maréchal, Odile) Sur la classification des symétries des $C^*$-algèbres UHF. (English summary) **56** #6404
**Fillmore, P. A.** *See* **Brown, Lawrence G.; et al.**, **49** #11265
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**Gamlen, John L. B.** *See* **Akemann, Charles A.; et al.**, **49** #9637
**Gartenberg, Michael** Approximation by invertibles. **55** #8809
**Giles, Robin** (*with* Kummer, Hans) A matrix representation of a pair of projections in a Hilbert space. **45** #912
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**Gillette, R. M.** (*with* Taylor, Donald Curtis) A characterization of the Pedersen ideal of $CD0(T, B_0(H))$ and a counter-example. **57** #1141
**Gonshor, Harry** Remarks on the algebra of bounded functions. **55** #8810
**Green, Michael D.** The lattice structure of $C^*$-algebras and their duals. **57** #17300
**Green, Philip** *See* **Brown, Lawrence G.; et al.**, **57** #3866
**Green, William L.** Topological dynamics and $C^*$-algebras. **52** #3972
**Greene, William A.** Ambrose modules. **50** #8092
**Gültekin Büyükyenerel, K.** Normal operators of higher degree in Hilbert space. **54** #11071
**Hall, Adrienne A.** Derivations of certain $C^*$-algebras. **51** #11122
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**Hamana, Masamichi** On linear topological properties of some $C^*$-algebras. **56** #1081
**Handelman, David** (*with* Lawrence, John) Finite Rickart $C^*$-algebras. **57** #7192
**Haydon, Richard** (*with* Wassermann, Simon) A commutation result for tensor products of $C^*$-algebras. **48** #6951
**Henle, Michael** A Lebesgue decomposition theorem for $C^*$-algebras. **47** #2380
**Herman, Richard H.** (*with* Reed, Michael C.) Covariant representations of infinite tensor product algebras. **46** #4217
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**Høegh-Krohn, Raphael J.** *See* **Albeverio, Sergio A.**, **57** #1138 *and* **Evans, David E.**, **58** #2319
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**König, Hermann** Diagonal and convolution operators as elements of operator ideals. (**52** #8987)

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**Effros, Edward G.** (*with* Lance, E. Christopher) Tensor products of operator algebras (**56** #6402)
**Faires, Barbara T.** *See* **Diestel, Joseph**, (**56** #12950)
**Galanis, E.** Separating functions for $V$-Sidon sets. (**47** #3912)
**Gordon, Y.** (*with* Lewis, D. R.) Absolutely summing, $L_1$ factorizable operators and thei applications. (**49** #1191)
**Grossetête, Claire** Topologies sur des espaces de mesures vectorielles. Mesures vectorielles majorables. Applications. (**49** #3539)
**Guichardet, Alain** ★Symmetric Hilbert spaces and related topics. (**58** #12416)
Espaces Hilbertiens symétriques et produits tensoriels continus. (**52** #14947)
**Guy, Noël** Une caractérisation tensorielle des espaces $L_1$ et $L_\infty$. (**54** #3364)
**Herman, Richard H.** (*with* Reed, Michael C.) Covariant representations of infinit tensor product algebras. (**46** #4217)
**Hollstein, Ralf** $(DCF)$-Räume und lokalkonvexe Tensorprodukte. (**58** #7012)
Über die Tonneliertheit von lokalkonvexen Tensorprodukten. (English summary (**58** #2121)
**Holub, J. R.** Schauder bases and norm ideals of compact operators. (**47** #5560)
**Hubbard, John Hamal** Transversalité. (**51** #3509)
**Huruya, Tadashi** The second dual of a tensor product of $C^*$-algebras. (**45** #7483)
**Ichinose, Takashi** Tensor products of linear operators and the method of separation o variables. (**57** #1156)
Operational calculus for tensor products of linear operators in Banach spaces (**51** #11154)
On tensor products of linear operators. (**57** #10465)
**Jha, Kamal Kant** Some new results on $\varepsilon$-tensor products of locally convex spaces (**45** #5701)
Analysis of bounded sets in a topological tensor product. (**46** #7863)
**Johnson, Jerry A.** Extreme points in tensor products and a theorem of de Leeuw (**45** #9104)
**Junghenn, Hugo D.** Tensor products and almost periodicity. (**51** #1476)
**Jurchescu, M.** Faisceaux sur un espace localement compact. (**49** #10913)
**Kaijser, Sten** An application of Grothendieck's inequality to a problem in harmoni analysis. (**58** #12201)
**Kirchberg, Eberhard** $C^*$-nuclearity implies CPAP. (**58** #23623)
**Kluvánek, Igor** An example concerning the projective tensor product of vector measures (**47** #825)
**Lance, E. Christopher** *See* **Effros, Edward G.**, (**56** #6402)
**Levi, Sandro** A note on Hardy spaces of vector-valued analytic functions. (Italia summary) (**46** #9744)
**Lewis, D. R.** *See* **Gordon, Y.**, (**49** #1191)
**Mallios, Anastasios** On generalized spectra of topological tensor algebras. (Greek summary) (**46** #7898)
**Maurey, Bernard** Quelques problèmes de factorisation d'opérateurs linéaires. (**55** #3852)
**Milman, Mario** Tensor products of function spaces. (**58** #2216)
**Muñoz Díaz, Jesús** Characterization of differentiable algebras and spectral synthesis fo modules over such algebras. (Spanish) (**47** #830)
**Nakagami, Yoshiomi** Infinite tensor products of operators. (**51** #13723)
**Noel, G.** Espaces de Banach ultraplats etespaces de Lindenstrauss-Pelczynski. (**53** #1235)
**Plastiras, Joan Kathryn** $C^*$-algebras isomorphic after tensoring. (**57** #1143)
**Popa, Nicolae** Ordered topological tensor products. (Romanian. French summary) (**49** #1062)
Quelques remarques sur un produit tensoriel d'opérateurs. (**53** #3754)
**Rao, M. M.** Compact operators and tensor products. (Russian summary) (**53** #1319)
**Reed, Michael C.** *See* **Herman, Richard H.**, (**46** #4217)
**Rieffel, Marc A.** Unitary representations induced from compact subgroups. (**47** #398
**Rigelhof, Roger** Tensor products of locally convex modules and applications to th multiplier problem. (**45** #2412 (EA **45**) )
**Saekī, Sadahiro** Homomorphisms of tensor algebras. (**45** #7479)
Tensor products of Banach algebras and harmonic analysis. (**48** #2672)

**elivanov, Ju. V.** The values assumed by the global dimension in certain classes of Banach algebras. (Russian. English summary) (**51** #11113)
**akenaka, Shigeo** Functional dimension of tensor product. (**45** #7433)
**anré, Daniel** Produits tensoriels topologiques. (**58** #24166)
**aylor, Joseph L.** Functions of several noncommuting variables. (**47** #3995)
**omášek, Stanislav** Projectively generated topologies on tensor products. (**45** #7434)
**omiuk, B. J.** Multipliers on dual $A^*$-algebras. (**55** #6194)
**omiyama, Jun** Tensor products and approximation problems of $C^*$-algebras. (**53** #1286)
**sitsas, Leonidas N.** On weak compactness in biprojective tensor product spaces. (**58** #7017)
**Vittstock, Gerd** Ordered normed tensor products. (**58** #7026)
Eine Bemerkung über Tensorprodukte von Banachverbänden. (**52** #6377)

## 46M10 Projective and injective objects

**otnaru, D. V.** Universal objects of $C$-reflexive subcategories of the category of separable locally convex spaces. (Russian) **58** #30328
**Choi, Man Duen** (*with* Effros, Edward G.) Injectivity and operator spaces. **55** #3814
**Courant, Simon** Beiträge zur Theorie der limitierten Vektorräume. **54** #957
**Dostál, Miloš A.** Some recent results on topological vector spaces. **53** #1296
**Effros, Edward G.** *See* **Choi, Man Duen**, **55** #3814
**Geĭler, V. A.** Some classes of projective locally convex spaces. (Russian) **58** #12419
**Golovin, Ju. O.** (*with* Helemskiĭ, A. Ja.) The homological dimension of certain modules over a tensor product of Banach algebras. (Russian. English summary) **56** #6427
**Helemskiĭ, A. Ja.** *See* **Golovin, Ju. O., 56** #6427
**Kaijser, Sten** Some remarks on injective Banach algebras. **58** #17879
**Kučera, Jan** (*with* McKennon, K.) Bounded sets in inductive limits. **57** #3875
**McKennon, K.** *See* **Kučera, Jan**, **57** #3875

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**Bigard, Alain** Modules ordonnés injectifs. (**52** #10539)
**Colojoară, Ion** Sur le théorème de Stone. (**57** #3809)
**Delfour, Michel C.** Function spaces with a projective limit structure. (**47** #7401)
**Floret, Klaus** $\mathfrak{L}_1$-Räume und Liftings von Operatoren nach Quotienten lokalkonvexer Räume. (**52** #11518)
**Geĭler, V. A.** The projective objects in the category of locally convex spaces. (Russian) (**45** #4095)
**Jurkiewicz, Lidia** (*with* Kąkol, Jerzy) Some remarks on Wiweger topology and generalization of inductive limit topology. (**57** #13435)
**Kąkol, Jerzy** *See* **Jurkiewicz, Lidia**, (**57** #13435)
**Kranzler, Stan K.** (*with* McDermott, Terrence S.) Continuous extension of sequentially continuous linear functionals in inductive limits of normed spaces. (**57** #7093)
**Krée, Paul R.** Utilisation de limites inductives généralisées d'espaces localement convexes. (**58** #29996)
**Lotz, Heinrich P.** Extensions and liftings of positive linear mappings on Banach lattices. (**52** #4022)
**McDermott, Terrence S.** *See* **Kranzler, Stan K.**, (**57** #7093)
**Murali, V.** Partition of unity on algebraic inductive limits. (**58** #12373)
**Neus, Hermann** Über die Regularitätsbegriffe induktiver lokalkonvexer Sequenzen. (English summary) (**58** #2125)
**Neville, Charles W.** Banach spaces with a restricted Hahn-Banach extension property. (**54** #899)
**Palamodov, V. P.** Homological methods in the theory of locally convex spaces. (Russian) (**45** #2442)
**Park, Young Lim** The minimal projective extension of the structure space of a ring. (**46** #2656)
**Šavgulidze, E. T.** Conditions for certain forms of completeness in the class of projective limits of sequences of inductive limits of sequences of Fréchet spaces. (Russian) (**58** #7013)
**Selivanov, Ju. A.** Banach algebras of small global dimension zero. (Russian) (**53** #14131)
**Tarafdar, E.** Improjective operators and ideals in a category of Banach spaces. (**47** #4045)
On further properties of improjective operators. (**47** #4046)
**Wolfe, John C.** Injective Banach spaces of continuous functions. (**57** #1098)

## 46M15 Functors

**Barr, Michael** Closed categories and Banach spaces. **56** #6428
**Belcastro, Alessandro** Una nota sull'articolo: "Somme dirette nella categoria degli spazi vettoriali topologici" (Rend. Sem. Mat. Univ. Padova **54** (1975), 185–199 (1976)). **57** #7205
**Bjon, Sten** Vervollständigung streng ausgeglichener Limesvektorräume. I. **58** #12420a
Vervollständigung streng ausgeglichener Limesvektorräume. II. **58** #12420b
**Botnaru, D. V.** (*with* Gisin, V. B.) Stable monomorphisms in the category of separated locally convex spaces. (Russian) **48** #12080
Conjugate pairs of subcategories of the category of separable locally convex groups. (Russian) **58** #30329
Conjugate pairs of subcategories. (Russian) **54** #11074
**Bratti, Giuliano** Generalizzazione di una proposizione di analisi funtoriale. Un'applicazione. **47** #2391
**Buhvalov, A. V.** The duality of functors that are generated by partially ordered spaces. (Russian) **53** #1297
The duality of functors that are generated by spaces of vector-valued functions. (Russian) **53** #8920
**Cigler, J.** Funktoren auf Kategorien von Banachräumen. **52** #11618
Tensor products of functors on categories of Banach spaces. **56** #12923
Zur Dualität von Funktoren, die durch Funktionenräume definiert sind. (English summary) **54** #13589
**Dierolf, Peter** (*with* Dierolf, Susanne) On linear topologies determined by a family of subsets of a topological vector space. **57** #13526
**Dierolf, Susanne** Über assoziierte lineare und lokalkonvexe Topologien. (English summary) **54** #3439
*See also* **Dierolf, Peter**, **57** #13526
**Epema, Jan** ★Functors on the category of Hilbert spaces. **58** #30330
**Funakosi, Shunsuke** Induced bornological representations of bornological algebras. I. **54** #958
**Gisin, V. B.** *See* **Botnaru, D. V.**, **48** #12080
**González Acuña, Francisco J.** On an article of Eilenberg and Moore. (Spanish) **49** #3562
**Gruson, L.** (*with* van der Put, Marius) Banach spaces. **51** #1426
**Hartig, Donald G.** On functors from compact pairs to Banach algebras. **52** #15041
**Haslinger, Friedrich** Funktoren auf Kategorien von nuklearen Räumen. (English and Russian summaries) **53** #1298
**Herz, Carl** (*with* Pelletier, Joan Wick) Dual functors and integral operators in the category of Banach spaces. **58** #7116
**Holodovskiĭ, V. E.** Whether subspaces of locally convex spaces are bornological. (Russian) **58** #30331
The monadicity of categories that are dual to certain categories of locally convex spaces. (Russian) **55** #3815
**Lorenz, Klaus Jürgen** Ein Permanenzprinzip für vektorwertige Distributionen. (English summary) **56** #3643
**Michor, Peter** Funktoren zwischen Kategorien von Banach-und Waelbroeck-Räumen. **49** #3564
Duality for contravariant functors on Banach spaces. **55** #3816
Banach-Semikategorien. I. **56** #3644a
Banach-Semikategorien. II. **56** #3644b
Banach-Semikategorien. III. **56** #3644c
**Naziev, A.** The realization of dual categories. (Russian) **49** #3563
**Palmquist, Paul H.** Adjoint functors induced by adjoint linear transformations. **49** #11273
**Pelletier, Joan Wick** Duality of functors in the category of Banach spaces. **53** #1299
A categorical approach to the closed graph theorem. **54** #5857
Categorical characterization of commutative von Neumann algebras. (Russian summary) **56** #3645
Localization of the dual functor in $\mathrm{BAN}^{\mathrm{BAN}}$. **56** #9286
*See also* **Herz, Carl**, **58** #7116
**Pietsch, A.** Interpolationsfunktoren, Folgenideale und Operatorenideale. **45** #2487
**van der Put, Marius** *See* **Gruson, L.**, **51** #1426
**Racher, G.** Einige Formeln für Funktoren auf Kategorien von Banachräumen. **55** #8828
**Retah, V. S.** A remark on the functor Ext in locally convex spaces. (Russian) **55** #8829
**Šeĭnberg, M. V.** Homological properties of closed ideals that have a bounded approximative unit. (Russian. English summary) **46** #9765
**Semadeni, Zbigniew** Some categorical characterizations of algebras of continuous functions. **54** #5858
**Shin, Dong Sun** On the category of vector lattices. **51** #13724
**Terzioğlu, Tosun** On the Gel′fand numbers of Hom$(S, T)$. **58** #30332
**Waelbroeck, Lucien** Les quotients d'espaces bornologiques complets; théorie multilinéaire. (English summary) **58** #12421
**Yang, Kung Wei** Compact functors in categories of non-archimedean Banach spaces. **46** #6060
**Zaharov, V. K.** Functors in the category of $K$-spaces. (Russian. English summary) **46** #683

Secondary classifications:

**Adamova, R. S.** Duality between complete and extremal spaces in the category of separated locally convex spaces. (Russian) (**55** #1017)
**Barr, Michael** Duality of Banach spaces. (**54** #11036)
Duality of vector spaces. (**54** #13522)
**Bjon, Sten** Minimale separierte Vektorraumlimitierungen und der Graphensatz. (**58** #2127)
**Borceux, Francis** Foncteurs adjoints relatifs en algèbre en analyse et en géométrie. (**58** #821)
**Bratti, Giuliano** Distribuzioni funtoriali in una variabile quasi periodiche. (**46** #6020)
Regolarizzazione delle distribuzioni funtoriali, di una variabile, quasi periodiche, mediante funzioni funtoriali, e loro approssimazioni. (**46** #9723)
Sul teorema dei nuclei per le distribuzioni funtoriali. (**47** #3985)
**Bunjaev, M. M.** Quasitopological vector spaces. (Russian) (**54** #11075)
**Bunjatov, M. R.** (*with* Nasibova, L. M.) Inductive limits and the Boolean power of locally convex topological vector spaces. (Russian. Georgian summary) (**58** #12263)
**Cooper, James Bell** Normal operators and spaces of distributions. (**58** #12345)
**Diestel, Joseph** (*with* Morris, Sidney A.; Saxon, Stephen A.) Varieties of linear topological spaces. (**47** #5540)
**Donaldson, Thomas K.** Harmonic analysis for functors on categories of Banach spaces of distributions. (**55** #13240)
**Enock, Michel** (*with* Schwartz, Jean-Marie) Une catégorie d'algèbres de Kac. (**52** #1344)
(*with* Schwartz, Jean-Marie) ★Une dualité dans les algèbres de von Neumann. (**56** #1091)
**Fiby, Rudolf** Extensions of polylinear mappings. (**48** #4074a)
Leibniz rule. (**48** #4074b)
**Foiaş, C.** Some applications of structural models for operators on Hilbert space. (**55** #13265)
**Frölicher, Alfred** Kompakt erzeugte Räume und Limesräume. (**49** #5776)
**Kantor, Jean-Michel** (*with* Schapira, Pierre) Hyperfonctions associées aux faisceaux analytiques réels cohérents. (**47** #823)

**Manes, Ernest Gene** $C(X)$ as a dual space. (**46** #6004)
**Marčenko, A. V.** Spaces of functions of an infinite number of variables as inductive limits of locally convex function spaces. (Russian) (**58** #2286)
**Merzon, A. E.** The covering of bounded sets in locally convex spaces. (Russian) (**46** #9677)
**Michor, Peter** Zum Tensorprodukt von Funktoren auf Kategorien von Banachräumen. (**51** #10438)
**Morris, Sidney A.** *See* **Diestel, Joseph; et al.**, (**47** #5540)
**Nasibova, L. M.** *See* **Bunjatov, M. R.**, (**58** #12263)
**Pietsch, A.** Extensions of operator ideals. (**56** #12918)
**Popa, Nicolae** Distributions fonctorielles et quelques applications. (**45** #889)
**Rieffel, Marc A.** Morita equivalence for $C^*$-algebras and $W^*$-algebras. (**51** #3912)
**Saxon, Stephen A.** *See* **Diestel, Joseph; et al.**, (**47** #5540)
**Schapira, Pierre** *See* **Kantor, Jean-Michel**, (**47** #823)
**Schwartz, Jean-Marie** *See* **Enock, Michel**, (**52** #1344) *and* **Enock, Michel**, (**56** #1091)
**Vasilevskiĭ, N. L.** Symbols of operator algebras. (Russian) (**56** #12961)
**Wingren, Carl-Erik** Spaces of continuous $n$-linear mappings in the category of locally convex limit spaces. (**57** #10401)
**Bull. Soc. Math. France Mém.** *See* **Enock, Michel; et al.**, (**56** #1091)

## 46M20 Homology and cohomology in functional analysis

**Bierstedt, Klaus-Dieter** (*with* Gramsch, Bernhard; Meise, Reinhold) Approximationseigenschaft, Lifting und Kohomologie bei lokalkonvexen Produktgarben. (English summary) **58** #23644
**Brown, Lawrence G.** Extensions and the structure of $C^*$-algebras. **56** #16400
(*with* Douglas, Ronald G.; Fillmore, P. A.) Extensions of $C^*$-algebras and $K$-homology. **56** #16399
**Dayton, Barry H.** $SK_1$ of commutative normed algebras. **58** #2347
**Dorfman, I. Ja.** Sheaf-theoretic methods in the theory of the Lévy Laplacian. (Russian) **58** #30333
Sheaf theory methods in the theory of the Lévy Laplacian. (Russian. Armenian and English summaries) **51** #13725
**Douglas, Ronald G.** *See* **Brown, Lawrence G.; et al.**, **56** #16399
**Fillmore, P. A.** *See* **Brown, Lawrence G.; et al.**, **56** #16399
**Gramsch, Bernhard** *See* **Bierstedt, Klaus-Dieter; et al.**, **58** #23644
**Helemskiĭ, A. Ja.** Lower values that admit the global homology dimension of functional Banach algebras. (Russian) **58** #2348
**Hofmann, Karl Heinrich** Bundles and sheaves are equivalent in the category of Banach spaces. **58** #7117
**Johnson, Barry Edward** ★Cohomology in Banach algebras. **51** #11130
Perturbations of Banach algebras. **56** #1094
**Kadison, Richard V.** Mappings of operator algebras. **55** #1095
**Kaliman, Š. I.** (*with* Selivanov, Ju. V.) The cohomology of operator algebras. (Russian. English summary) **50** #10851
**Kamei, Eizaburo** (*with* Kato, Yoshinobu) Homotopical properties of partial isometries of the Calkin algebra. **56** #16401
(*with* Kato, Yoshinobu) Partial isometries of the Calkin algebra. **58** #7118
Topological properties of normal elements of the Calkin algebra. **58** #12422
**Kaminker, Jerome** (*with* Schochet, Claude) Ext$(X)$ from a homological point of view. **56** #6429
(*with* Schochet, Claude) Steenrod homology and operator algebras. **56** #9287
**Kato, Yoshinobu** *See* **Kamei, Eizaburo**, **56** #16401 *and* **Kamei, Eizaburo**, **58** #7118
**Meise, Reinhold** *See* **Bierstedt, Klaus-Dieter; et al.**, **58** #23644
**Pryde, A. J.** The five lemma for Banach spaces. **56** #9288
**Raeburn, Iain** (*with* Taylor, Joseph L.) Hochschild cohomology and perturbations of Banach algebras. **58** #30334
**Ringrose, John R.** Cohomology of operator algebras. **52** #3983
**Salinas, Norberto** Homotopy invariance of Ext$(\mathcal{A})$. **58** #23645
**Schlote, K.-H.** Zur Kohomologietheorie topologischer Algebren. **55** #3817
**Schochet, Claude** *See* **Kaminker, Jerome**, **56** #6429 *and* **Kaminker, Jerome**, **56** #9287
**Šeinberg, M. V.** The relative homological dimension of group algebras of locally compact groups. (Russian) **48** #6965
A characterization of the algebra $C(\Omega)$ in terms of cohomology groups. (Russian) **57** #1150
**Selivanov, Ju. A.** Biprojective Banach algebras, their structure, cohomology and relation with nuclear operators. (Russian) **53** #8921
**Selivanov, Ju. V.** *See* **Kaliman, Š. I.**, **50** #10851
**Singer, I. M.** Operator theory and periodicity. **56** #3646
**Taylor, Joseph L.** Homology and cohomology for topological algebras. **48** #6966
A general framework for a multi-operator functional calculus. **48** #6967
Homotopy invariants for Banach algebras. **55** #8830
Twisted products of Banach algebras and third Čech cohomology. **58** #30335
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**Tonev, Toma V.** Cohomotopy groups $\pi^{n,n-1}$ of the space of maximal ideals. (Russian) **55** #1096

Secondary classifications:

**Anantharaman-Delaroche, Claire** ★Extensions des $C^*$-algèbres. (**58** #30290)
**Anderson, Joel** A $C^*$-algebra $\mathcal{A}$ for which Ext$(\mathcal{A})$ is not a group. (**58** #12399)
**Atiyah, M. F.** A survey of $K$-theory. (**57** #13946)
The unity of mathematics. (**57** #15799)
**Banaschewski, Bernhard** Sheaves of Banach spaces. (**58** #11073)
**Berger, C. A.** (*with* Coburn, L. A.; Lebow, Arnold) Representation and index theory for $C^*$-algebras generated by commuting isometries. (**57** #7251)
**Brown, Lawrence G.** (*with* Douglas, Ronald G.; Fillmore, P. A.) Unitary equivalence modulo the compact operators and extensions of $C^*$-algebras. (**52** #1378)
Operator algebras and algebraic $K$-theory. (**52** #3971)
Characterizing Ext$(X)$. (**57** #13922)
**Choi, Man Duen** (*with* Effros, Edward G.) Lifting problems and the cohomolog $C^*$-algebras. (**57** #3867)
**Coburn, L. A.** *See* **Berger, C. A.; et al.**, (**57** #7251)
**Conway, John B.** On the Calkin algebra and the covering homotopy property. (**53** #3717)
**Craw, Ian G.** Axiomatic cohomology for Banach modules. (**47** #7433)
**(Dal Soglio-Hérault, L.)** *See* **Fell, James M. G.**, (**56** #15825)
**Davie, A. M.** Classification of essentially normal operators. (**58** #12478)
**(Douady, Adrien)** *See* **Fell, James M. G.**, (**56** #15825)
**Douglas, Ronald G.** The relation of Ext to $K$-theory. (**58** #30291)
Extensions of $C^*$-algebras and $K$-homology. (**57** #13914)
*See also* **Brown, Lawrence G.; et al.**, (**52** #1378)
**Effros, Edward G.** *See* **Choi, Man Duen**, (**57** #3867)
**Fedosov, B. V.** A periodicity theorem in the algebra of symbols. (Russian) (**58** #77
**Fell, James M. G.** ★Induced representations and Banach *-algebraic bundles. (**56** #15825)
**Fillmore, P. A.** Extensions relative to semifinite factors. (**56** #9279)
*See also* **Brown, Lawrence G.; et al.**, (**52** #1378)
**Fujii, Kazuyuki** Note on a paper of J. L. Taylor. (**58** #13121)
**Greene, William A.** Ambrose modules. (**50** #8092)
**Guichardet, Alain** Group cohomology and dynamical systems. (**56** #1085)
**Helemskiĭ, A. Ja.** The global dimension of a Banach function algebra is different fr one. (Russian) (**53** #1273)
**Johnson, Barry Edward** Approximate diagonals and cohomology of certain annihila Banach algebras. (**47** #5598)
(*with* Kadison, Richard V.; Ringrose, John R.) Cohomology of operator algebras. III. Reduction to normal cohomology. (**47** #7454)
A class of $\mathrm{II}_1$ factors without property P but with zero second cohomolog (**51** #11126)
Introduction to cohomology in Banach algebras. (**54** #5835)
**Kadison, Richard V.** (*with* Ringrose, John R.) Cohomology of operator algebras. Extended cobounding and the hyperfinite case. (**47** #7453)
*See also* **Johnson, Barry Edward; et al.**, (**47** #7454)
**Kaminker, Jerome** (*with* Schochet, Claude) Topological obstructions to perturbations pairs of operators. (**57** #17625)
(*with* Schochet, Claude) $K$-theory and Steenrod homology: applications to t Brown-Douglas-Fillmore theory of operator algebras. (**55** #4138)
**Kasparov, G. G.** A generalized index for elliptic operators. (Russian) (**56** #3899)
Topological invariants of elliptic operators. I. $K$-homology. (Russian) (**58** #760
**Lebow, Arnold** *See* **Berger, C. A.; et al.**, (**57** #7251)
**Liddell, Michael J.** Separable topological algebras. I. (**50** #5471)
**Lindblad, Göran** Dissipative operators and cohomology of operator algebras. (**54** #8299)
**Miščenko, A. S.** (*with* Solov′ev, Ju. P.) Infinite-dimensional representations of fundamental groups, and formulas of Hirzebruch type. (Russian) (**58** #13219)
**O'Donovan, Donald P.** Quasidiagonality in the Brown-Douglas-Fillmore theory. (**58** #2326)
**Pearcy, Carl M.** (*with* Salinas, Norberto) Extensions of $C^*$-algebras and the reduci essential matricial spectra of an operator. (**57** #7193)
**Ringrose, John R.** *See* **Kadison, Richard V.**, (**47** #7453) *and* **Johnson, Barry Edward; al.**, (**47** #7454)
**Rochberg, Richard** Function algebra invariants and the conformal structure of plan domains. (**54** #5839)
**Salinas, Norberto** *See* **Pearcy, Carl M.**, (**57** #7193)
**Schochet, Claude** *See* **Kaminker, Jerome**, (**55** #4138) *and* **Kaminker, Jerome**, (**57** #17625)
**Segal, Graeme B.** $K$-homology theory and algebraic $K$-theory. (**58** #24242)
**Singer, I. M.** Some remarks on operator theory and index theory. (**57** #7699)
**Słodkowski, Zbigniew** An infinite family of joint spectra. (**57** #1157)
**Solov′ev, Ju. P.** *See* **Miščenko, A. S.**, (**58** #13219)
**Taylor, Joseph L.** Banach algebras and topology. (**54** #5837)
**Wassermann, Simon** Liftings in $C^*$-algebras: a counterexample. (**57** #3868)
**Bull. Soc. Math. France Mém.** *See* **Anantharaman-Delaroche, Claire**, (**58** #30290)

## 46M35 Abstract interpolation of topological vector spaces

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**lakrishnan, A. V.** ★Введение в теорию оптимизации в Гильбертовом пространстве. (Russian) [Introduction to optimization theory in Hilbert space] (**50** #3045)
**amkrelidze, R. V.)** *See* **Balakrishnan, A. V.**, (**50** #3045)
**appel'baum, È. L.)** *See* **Balakrishnan, A. V.**, (**50** #3045)
**rapp, George E., Jr.** *See* **Anderson, William N., Jr.**, (**50** #9417)
**sida, Kôsaku** ★Functional analysis. (**50** #2851)

### 47–01 Elementary exposition (collegiate level)

**hiezer, N. I.** (*with* Glazman, I. M.) ★Theorie der linearen Operatoren im Hilbert-Raum. **58** #30343
**kilov, G. P.** *See* **Kantorovič, L. V.**, **56** #16402
**aumgärtel, H.)** *See* **Ahiezer, N. I.; et al.**, **58** #30343
**riedrichs, Kurt O.** ★Spectral theory of operators in Hilbert space. **57** #10444
**lazman, I. M.** *See* **Ahiezer, N. I.**, **58** #30343
**antorovič, L. V.** (*with* Akilov, G. P.) ★Funktionalanalysis in normierten Räumen. **56** #16402
**öthe, Gottfried)** *See* **Ahiezer, N. I.; et al.**, **58** #30343
**ühne, Rolf)** *See* **Kantorovič, L. V.; et al.**, **56** #16402
**anger, Heinz)** *See* **Kantorovič, L. V.; et al.**, **56** #16402
**üller, Paul Heinz)** *See* **Kantorovič, L. V.; et al.**, **56** #16402
**aylor, Arch W.** (*with* Sell, George R.) ★Linear operator theory in engineering and science. **57** #1151
**ell, George R.** *See* **Naylor, Arch W.**, **57** #1151
**uhadolc, Anton** ★Sebi adjungirani operatorji v Hilbertovem prostoru. (Slovenian) [Selfadjoint operators in Hilbert space] **58** #12427
**akeuchi, Yu** Space with the operator metric. (Spanish) **58** #30344
**eidmann, Joachim** ★Lineare Operatoren in Hilberträumen. **58** #30345

Secondary classifications:

**kilov, G. P.** *See* **Kantorovič, L. V.**, (**58** #23465)
**erberian, Sterling K.** ★Introducción al espacio de Hilbert. (Spanish) [Introduction to Hilbert space] (**51** #8799)
★Introduction to Hilbert space. (**54** #3342)
**rown, A. L.** (*with* Page, Annie) ★Elements of functional analysis. (**50** #10732)
**rown, Arlen** (*with* Pearcy, Carl M.) ★Introduction to operator theory. I. (**58** #23463)
**ignoli, Roberto** *See* **Cotlar, Mischa**, (**53** #8845)
**otlar, Mischa** (*with* Cignoli, Roberto) ★An introduction to functional analysis. (**53** #8845)
**elves, L. M.** Function spaces and linear operators. (**58** #7009)
**age, M. K.** ★Теория линейных операторов. (Russian) [Theory of linear operators] (**54** #3343)
**iedler, Klaus)** *See* **Ljusternik, L. A.; et al.**, (**53** #14063)
**omin, S. V.** *See* **Kolmogorov, A. N.**, (**55** #8728)
**heorghiu, N.** ★Introducere în analiza funcţională. (Romanian) [Introduction to functional analysis.] (**57** #1053)
**onzález Villalobos, A.)** *See* **Cotlar, Mischa; et al.**, (**53** #8845)
**röger, Konrad)** *See* **Ljusternik, L. A.; et al.**, (**53** #14063)
**rossmann, Siegfried** ★Funktionalanalysis. I, II: Im Hinblick auf Anwendungen in der Physik. (**55** #8726)
**ackenbroch, Wolfgang** Spektraltheorie im Hilbertraum. (**56** #16425)
**almos, Paul R.** ★Finite-dimensional vector spaces. (**53** #13258)
**euser, Harro** ★Funktionalanalysis. (**58** #2111)
**önig, Chaim Samuel** ★Análise functional e aplicações. Vols. I, II. (Portuguese) [Functional analysis and applications. Vols. I, II] (**57** #1054)
★Análise funcional e o problema de Sturm-Liouville. (Portuguese) [Functional analysis and the Sturm-Liouville problem] (**55** #8727)
**antorovič, L. V.** (*with* Akilov, G. P.) ★Функциональный анализ. (Russian) [Functional analysis] (**58** #23465)
**olmogorov, A. N.** (*with* Fomīn, S. V.) ★Элементы теории функций и функционального анализа. (Russian) [Elements of the theory of functions and functional analysis] (**55** #8728)
**reyszig, Erwin** ★Introductory functional analysis with applications. (**57** #7084)
**rižanič, France** ★Linearna algebra in linearna analize. (Slovenian) [Linear algebra and linear analysis] (**51** #7762)
**ufner, Alois** ★Geometrie Hilbertova prostoru. (Czech) [The geometry of Hilbert space] (**55** #10988)
**Kunze, Ray A.** *See* **Segal, Irving Ezra**, (**58** #6126)
**Lara-Carrero, Lorenzo** ★Ecuaciones en derivadas parciales lineales. (Spanish) [Linear partial differential equations] (**58** #11821)
**Larsen, Ronald** ★Functional analysis: an introduction. (**57** #1055)
**Ljusternik, L. A.** (*with* Sobolev, V. I.) ★Elemente der Funktionalanalysis. (**53** #14063)
**Meissl, P.** Elements of functional analysis. (**55** #8729 (EA **55**/**56**) )
**Musielak, Julian** ★Wstęp do analizy funkcjonalnej. (Polish) [Introduction to functional analysis] (Not reviewed)
**Page, Annie** *See* **Brown, A. L.**, (**50** #10732)
**Pearcy, Carl M.** *See* **Brown, Arlen**, (**58** #23463)
**(Plans, Antonio)** *See* **Berberian, Sterling K.**, (**51** #8799)
**(Rodríguez Vidal, Rafael)** *See* **Berberian, Sterling K.**, (**51** #8799)
**(Sánchez Guillén, Joaquin)** *See* **Berberian, Sterling K.**, (**51** #8799)
**Schechter, Martin** ★Principles of functional analysis. (**56** #3607)
★Principles of functional analysis. (**57** #7085)
**Segal, Irving Ezra** (*with* Kunze, Ray A.) ★Integrals and operators. (**58** #6126)
**Showalter, Ralph E.** ★Hilbert space methods for partial differential equations. (**57** #16922)
**Sobolev, V. I.** *See* **Ljusternik, L. A.**, (**53** #14063)
**(Torchinsky, Alberto)** *See* **Cotlar, Mischa; et al.**, (**53** #8845)
**Voigt, Alexander** (*with* Wloka, Joseph) ★Hilberträume und elliptische Differentialoperatoren. (**56** #12803)
**Wloka, Joseph** *See* **Voigt, Alexander**, (**56** #12803)
**Yosida, Kôsaku** ★Functional analysis. (**58** #17765)

### 47–02 Advanced exposition (research surveys, etc.)

**Ahiezer, N. I.** (*with* Glazman, I. M.) ★Theorie der linearen Operatoren im Hilbert-Raum. **57** #1152
**(Alexiewicz, Andrzej)** *See* **Maurin, Krzysztof**, **53** #11390
**Atkinson, Frederick V.** ★Multiparameter eigenvalue problems. **56** #9291
**Balakrishnan, A. V.** ★Applied functional analysis. **57** #10445
**(Baumgärtel, H.)** *See* **Ahiezer, N. I.; et al.**, **57** #1152
**(Bogoljubov, N. N.)** *See* **Reed, Michael C.; et al.**, **58** #12430a
**Carey, Richard W.** (*with* Pincus, Joel D.) Almost commuting algebras. **58** #23652
**Glazman, I. M.** *See* **Ahiezer, N. I.**, **57** #1152
**(Golo, V. L.)** *See* **Maslov, V. P.**, **58** #23653
**Hille, Einar** (*with* Phillips, Ralph S.) ★Functional analysis and semi-groups. **54** #11077
**Korotkov, V. B.** ★Интегральные операторы. (Russian) [Integral operators] **58** #12428
**(Köthe, Gottfried)** *See* **Ahiezer, N. I.; et al.**, **57** #1152
**(Kul'man, N. K.)** *See* **Maslov, V. P.**, **58** #23653
**Maslov, V. P.** ★Операторные методы. (Russian) [Operator methods] **56** #3647
★Operational methods. **58** #23653
**Maurin, Krzysztof** ★Methods of Hilbert spaces. **53** #11390
**(Musielak, Julian)** *See* **Przeworska-Rolewicz, Danuta; et al.**, **54** #963
**(Nikol'skiĭ, N. K.)** *See* **Investigations in linear operators and function theory**, **46** #7927
**Pearcy, Carl M.** ★Some recent developments in operator theory. **58** #7120
**Phillips, Ralph S.** *See* **Hille, Einar**, **54** #11077
**Pincus, Joel D.** *See* **Carey, Richard W.**, **58** #23652
**(Pogrebkov, A. K.)** *See* **Reed, Michael C.; et al.**, **58** #12430a *and* **Reed, Michael C.; et al.**, **58** #12430b
**(Polivanov, M. K.)** *See* **Reed, Michael C.; et al.**, **58** #12430a *and* **Reed, Michael C.; et al.**, **58** #12430b
**Przeworska-Rolewicz, Danuta** (*with* Rolewicz, Stefan) ★Equations in linear spaces. [Monographs in Mathematics. Vol. 47] **54** #963
**Reed, Michael C.** (*with* Simon, Barry) ★Methods of modern mathematical physics. I. Functional analysis. **58** #12429a
(*with* Simon, Barry) ★Methods of modern mathematical physics. II. Fourier analysis, self-adjointness. **58** #12429b
(*with* Simon, Barry) ★Методы современной математической физики. 1: Функциональный анализ. (Russian) [Methods of modern mathematical physics. 1: Functional analysis] **58** #12430a
(*with* Simon, Barry) ★Methods of modern mathematical physics. IV. Analysis of operators. **58** #12429c
(*with* Simon, Barry) ★Методы современной математической физики. 2: Гармонический анализ. Самосопряженность. (Russian) [Methods of modern mathematical physics. 2: Harmonic analysis. Selfadjointness] **58** #12430b
**Rolewicz, Stefan** *See* **Przeworska-Rolewicz, Danuta**, **54** #963
**Saeks, Richard** The factorization problem–a survey. **53** #14161
**Schock, Eberhard** (*with* Weis, Lutz) Einige Aspekte der Funktionalanalysis. (See RŽMat **1976** #7 B585)
**Simon, Barry** *See* **Reed, Michael C.**, **58** #12429a; **Reed, Michael C.**, **58** #12429b; **Reed, Michael C.**, **58** #12429c; **Reed, Michael C.**, **58** #12430a *and* **Reed, Michael C.**, **58** #12430b
**(Suško, V. N.)** *See* **Reed, Michael C.; et al.**, **58** #12430a *and* **Reed, Michael C.; et al.**, **58** #12430b
**(Voropaeva, G. A.)** *See* **Maslov, V. P.**, **58** #23653
**Weis, Lutz** *See* **Schock, Eberhard**, (See RŽMat **1976** #7 B585)
**(Wood, James S.)** *See* **Investigations in linear operators and function theory**, **46** #7927
**(Zawadowski, Wacław)** *See* **Maurin, Krzysztof**, **53** #11390
**Bibliography:**
**Factorization of operators** *See* **Saeks, Richard**, **53** #14161
**Function theory** *See* **Investigations in linear operators and function theory**, **46** #7927
**Investigations in linear operators and function theory** ★Investigations in linear operators and function theory, Part I. **46** #7927
**Linear operators** *See* **Investigations in linear operators and function theory**, **46** #7927
**Seminars in Mathematics (V. A. Steklov Math. Inst., Leningrad)** *See* **Investigations in linear operators and function theory**, **46** #7927

Secondary classifications:

**Agranovskiĭ, M. L.** (*with* Akilov, G. P.; Vuvunikjan, Ju. M.; Kutateladze, S. S.) Works in the domain of functional analysis. (Russian) (**54** #879)
**Akilov, G. P.** *See* **Agranovskiĭ, M. L.; et al.**, (**54** #879)
**(Bade, William G.)** *See* **Dunford, Nelson; et al.**, (**54** #1009)
**(Barker, George Phillip)** *See* **Glazman, I. M.; et al.**, (**50** #7195)
**(Bartle, Robert G.)** *See* **Dunford, Nelson; et al.**, (**54** #1009)
**Baumgärtel, H.** ★Endlichdimensionale analytische Störungstheorie. (**58** #30389)
**Berberian, Sterling K.** ★Lectures in functional analysis and operator theory. (**54** #5775)
**Birman, M. Š.** (*with* Vilenkin, N. Ja.; Gorin, E. A.; Zabreĭko, P. P.; Iohvidov, I. S.; Kadec′, M. Ĭ.; Kostjučenko, A. G.; Krasnosel′skiĭ, M. A.; Kreĭn, S. G.; Mitjagin, B. S.; Petunīn, Ju. Ī.; Rutickiĭ, Ja. B.; Semenov, E. M.; Sobolev, V. I.; Stecenko, V. Ja.; Faddeev, L. D.; Citlanadze, È. S.) ★Функциональный анализ. (Russian) [Functional analysis] (**50** #5406)
**(Boroń, Leo F.)** *See* **Vilenkin, N. Ja.; et al.**, (**52** #11516)
**(Brehmer, Siegfried)** *See* **Riesz, Frigyes; et al.**, (**49** #9570)
**Citlanadze, È. S.** *See* **Birman, M. Š.; et al.**, (**50** #5406) *and* **Vilenkin, N. Ja.; et al.**, (**52** #11516)
**Douglas, Ronald G.** ★Banach algebra techniques in operator theory. (**50** #14335)
**Dunford, Nelson** (*with* Schwartz, Jacob T.) ★Linear operators. Part III: Spectral operators. (**54** #1009)
**Faddeev, L. D.** *See* **Birman, M. Š.; et al.**, (**50** #5406) *and* **Vilenkin, N. Ja.; et al.**, (**52** #11516)
**(Flaherty, Richard E.)** *See* **Vilenkin, N. Ja.; et al.**, (**52** #11516)
**Glazman, I. M.** (*with* Ljubič, Ju. I.) ★Конечномерный линейный анализ в задачах. (Russian) [Finite-dimensional analysis in problems] (**50** #7192)
  (*with* Ljubič, Ju. I.) ★Analyse linéaire dans les espaces de dimensions finies: manuel en problèmes. (**50** #7193)
  (*with* Ljubič, Ju. I.) ★Analyse linéaire dans les espaces de dimensions finies: manuel en problèmes. (**50** #7194)
  (*with* Ljubič, Ju. I.) ★Finite-dimensional linear analysis: a systematic presentation in problem form. (**50** #7195)
**Gorin, E. A.** *See* **Birman, M. Š.; et al.**, (**50** #5406) *and* **Vilenkin, N. Ja.; et al.**, (**52** #11516)
**Iohvidov, I. S.** *See* **Birman, M. Š.; et al.**, (**50** #5406)
**Jörgens, Konrad** ★Lineare Integraloperatoren. (**57** #1036)
**Kadec′, M. Ĭ.** *See* **Birman, M. Š.; et al.**, (**50** #5406)
**Kostjučenko, A. G.** *See* **Birman, M. Š.; et al.**, (**50** #5406) *and* **Vilenkin, N. Ja.; et al.**, (**52** #11516)
**Krasnosel′skiĭ, M. A.** *See* **Birman, M. Š.; et al.**, (**50** #5406)
**Krasnosel′skiĭ, S. G.** *See* **Vilenkin, N. Ja.; et al.**, (**52** #11516)
**Kreĭn, S. G.** *See* **Birman, M. Š.; et al.**, (**50** #5406) *and* **Vilenkin, N. Ja.; et al.**, (**52** #11516)
**(Kuerti, G.)** *See* **Glazman, I. M.; et al.**, (**50** #7195)
**Kutateladze, S. S.** *See* **Agranovskiĭ, M. L.; et al.**, (**54** #879)
**Ljubič, Ju. I.** *See* **Glazman, I. M.**, (**50** #7192); **Glazman, I. M.**, (**50** #7193); **Glazman, I. M.**, (**50** #7194) *and* **Glazman, I. M.**, (**50** #7195)
**Ljusternik, L. A.** (*with* Sobolev, V. Ja.) ★Elements of functional analysis. (**50** #2852)
**(Mai, Brigitte)** *See* **Riesz, Frigyes; et al.**, (**49** #9570)
**Maslov, V. P.** *See* **Vilenkin, N. Ja.; et al.**, (**52** #11516)
**Mitjagin, B. S.** *See* **Birman, M. Š.; et al.**, (**50** #5406) *and* **Vilenkin, N. Ja.; et al.**, (**52** #11516)
**Petunīn, Ju. Ī.** *See* **Birman, M. Š.; et al.**, (**50** #5406) *and* **Vilenkin, N. Ja.; et al.**, (**52** #11516)
**Riesz, Frigyes** (*with* Sz.-Nagy, Béla) ★Vorlesungen über Funktionalanalysis. (**49** #9570)
**Roman, Paul** ★Some modern mathematics for physicists and other outsiders. (**52** #13049)
**Rutickiĭ, Ja. B.** *See* **Birman, M. Š.; et al.**, (**50** #5406) *and* **Vilenkin, N. Ja.; et al.**, (**52** #11516)
**Schwartz, Jacob T.** *See* **Dunford, Nelson**, (**54** #1009)
**Semenov, E. M.** *See* **Birman, M. Š.; et al.**, (**50** #5406)
**Smirnov, V. I.** ★Курс высшей математики. Том 5. (Russian) [A course in higher mathematics. Vol. 5] (**50** #5407)
  ★Lehrgang der höheren Mathematik. Teil V. (**50** #5408)
**Sobolev, V. I.** *See* **Birman, M. Š.; et al.**, (**50** #5406) *and* **Vilenkin, N. Ja.; et al.**, (**52** #11516)
**Sobolev, V. Ja.** *See* **Ljusternik, L. A.**, (**50** #2852)
**Stecenko, V. Ja.** *See* **Birman, M. Š.; et al.**, (**50** #5406) *and* **Vilenkin, N. Ja.; et al.**, (**52** #11516)
**Sz.-Nagy, Béla** *See* **Riesz, Frigyes**, (**49** #9570)
**Triebel, Hans** ★Höhere Analysis. (**50** #12511)
**Vilenkin, N. Ja.** (*with* Gorin, E. A.; Kostjučenko, A. G.; Krasnosel′skiĭ, S. G.; Kreĭn, S. G.; Maslov, V. P.; Mitjagin, B. S.; Petunīn, Ju. Ī.; Rutickiĭ, Ja. B.; Sobolev, V. I.; Stecenko, V. Ja.; Faddeev, L. D.; Citlanadze, È. S.) ★Functional analysis. (**52** #11516)
  *See also* **Birman, M. Š.; et al.**, (**50** #5406)
**(Votruba, George F.)** *See* **Vilenkin, N. Ja.; et al.**, (**52** #11516)
**Vuvunikjan, Ju. M.** *See* **Agranovskiĭ, M. L.; et al.**, (**54** #879)
**Weidmann, Joachim** ★Lineare Operatoren in Hilberträumen. (**58** #30345)
**Zabreĭko, P. P.** *See* **Birman, M. Š.; et al.**, (**50** #5406)

## 47–03 Historical

**Steen, Lynn Arthur** Highlights in the history of spectral theory. (Polish) **55** #6207

Secondary classifications:

**(Banach, Stefan)** *See* **Monna, A. F.**, (**52** #10329)
**Dorofeeva, A. V.** (*with* Rybnikov, K. A.) De la formation des notions fondamentales l'analyse fonctionnelle au XIX$^{e}$ siècle. (**58** #21255)
**Monna, A. F.** Sur l'origine de la notion de dérivation en algèbre. (**49** #2227)
  Banach's *Théorie des opérations linéaires*. (**52** #10329)
**Netuka, Ivan** (*with* Veselý, Jiří) Ivar Fredholm and the origins of functional analysi (Czech) (**58** #27081)
**Rybnikov, K. A.** *See* **Dorofeeva, A. V.**, (**58** #21255)
**Veselý, Jiří** *See* **Netuka, Ivan**, (**58** #27081)

## 47–06 Collections of papers; proceedings of conferences

**(Berezans′kiĭ, Ju. M.)** *See* **Spectral theory of operators and infinite-dimensional analysis** **55** #11073
**(Butzer, Paul L.)** *See* **Linear operators and approximation**, **50** #5498
**(Cesari, Lamberto)** *See* **Nonlinear functional analysis and differential equations**, **57** #17314
**(Fillmore, P. A.)** *See* **Proceedings: Conference on Operator Theory**, **49** #11276
**(Gamkrelidze, R. V.)** *See* **Mathematical analysis**, **54** #964
**(Gasymov, M. G.)** *See* **Proceedings: Summer School in the Spectral Theory of Operator and the Theory of Group Representation**, **52** #6457 *and* **Spectral theory of operators** **57** #10446
**(Gorbačuk, M. L.)** *See* **Spectral theory of operators and infinite-dimensional analysis** **55** #11073
**(Gossez, Jean-Pierre)** *See* **Nonlinear operators and the calculus of variations**, **58** #12431
**(Goulaouic, C.)** *See* **Séminaire: Goulaouic-Schwartz**, **52** #8961; **Séminaire: Goulaouic-Schwartz**, **52** #8962; **Séminaire: Goulaouic-Schwartz**, **52** #8963; **Séminaire: Goulaouic-Schwartz**, **52** #8964 *and* **Séminaire: Goulaouic-Lions-Schwartz**, **52** #8965
**(Hvedelidze, B. V.)** *See* **Collection: Functional analysis**, **53** #3730
**(Kahane, Jean-Pierre)** *See* **Linear operators and approximation**, **50** #5498
**(Kannan, Rangachary)** *See* **Nonlinear functional analysis and differential equations**, **57** #17314
**(Kluge, Reinhard)** *See* **Theory of nonlinear operators**, **57** #1154
**(Kreĭn, S. G.)** *See* **Collection: Function spaces and operator equations**, **52** #15044
**(Lami Dozo, Enrique José)** *See* **Nonlinear operators and the calculus of variations**, **58** #12431
**(Lions, Jacques-Louis)** *See* **Séminaire: Goulaouic-Lions-Schwartz**, **52** #8965
**(Maksudov, F. G.)** *See* **Proceedings: Summer School in the Spectral Theory of Operators and the Theory of Group Representation**, **52** #6457 *and* **Spectral theory of operators**, **57** #10446
**(Markus, A. S.)** *See* **Spectral properties of operators**, **57** #1153
**(Mawhin, Jean L.)** *See* **Nonlinear operators and the calculus of variations**, **58** #12431
**(Müller, Wolfdietrich)** *See* **Theory of nonlinear operators**, **57** #1154
**(Mushelišvili, N. I.)** *See* **Collection: Functional analysis**, **53** #3730
**(Nikol′skiĭ, N. K.)** *See* **Spectral theory of functions and operators**, **58** #7121 *and* **Investigations on linear operators and the theory of functions**, **58** #17880
**(Nižnik, L. P.)** *See* **Spectral theory of operators and infinite-dimensional analysis**, **55** #11073
**(Pearcy, Carl M.)** *See* **Topics in operator theory**, **50** #2938
**(Russu, G. I.)** *See* **Nonselfadjoint operators**, **55** #3821; **Spectral properties of operators**, **57** #1153 *and* **Operators in Banach spaces**, **58** #2357
**(Schuur, Jerry D.)** *See* **Nonlinear functional analysis and differential equations**, **57** #17314
**(Schwartz, Laurent)** *See* **Séminaire: Goulaouic-Schwartz**, **52** #8961; **Séminaire: Goulaouic-Schwartz**, **52** #8962; **Séminaire: Goulaouic-Schwartz**, **52** #8963; **Séminaire: Goulaouic-Schwartz**, **52** #8964 *and* **Séminaire: Goulaouic-Lions-Schwartz**, **52** #8965
**(Semencul, A. A.)** *See* **Spectral properties of operators**, **57** #1153
**(Sobolev, V. I.)** *See* **Collection: Function spaces and operator equations**, **52** #15044
**(Štraus, A. V.)** *See* **Functional analysis**, **57** #7206
**(Sz.-Nagy, Béla)** *See* **Hilbert space operators and operator algebras**, **49** #11275 *an* **Linear operators and approximation**, **50** #5498
**(Waelbroeck, Lucien)** *See* **Nonlinear operators and the calculus of variations**, **58** #12431
**(Zabreĭko, P. P.)** *See* **Qualitative and approximate methods for the investigation o operator equations**, **58** #30349
**American Mathematical Society Translations, Ser. 2** ★American Mathematical Societ Translations, Series 2. Vol. 103: Nine papers in analysis. **48** #6969
**Approximation theory** *See* **Linear operators and approximation**, **50** #5498
**Banach spaces** *See* **Research on operators in Banach spaces**, **58** #30350
**Berlin** *See* **Theory of nonlinear operators**, **57** #1154
**Calculus of variations** *See* **Nonlinear operators and the calculus of variations**, **58** #12431
**Collection:**
  **Function spaces and operator equations** ★Сборник статей по функциональны пространствам и операторным уравнениям. (Russian) [A collection of articles on function spaces and operator equations] **52** #15044
  **Functional analysis** ★Сборник работ по функциональному анализу. 2. (Russian) [Collection of articles on functional analysis. 2] **53** #3730
**Colloquia Mathematica Societatis János Bolyai** *See* **Hilbert space operators and operato algebras**, **49** #11275
**Conference:**
  **Hilbert Space Operators and Operator Algebras** *See* **Hilbert space operators an operator algebras**, **49** #11275
  **Linear Operators and Approximation Theory** *See* **Linear operators and approximation**, **50** #5498
  **Nonlinear Functional Analysis and Differential Equations** *See* **Nonlinear functional analysis and differential equations**, **57** #17314
  **Operator Theory** *See* **Proceedings: Conference on Operator Theory**, **49** #11276
**Differential equations** *See* **Nonlinear functional analysis and differential equations**, **57** #17314
**East Lansing, Mich.** *See* **Nonlinear functional analysis and differential equations**, **57** #17314

**ction spaces** *See* **Collection: Function spaces and operator equations, 52 #15044**

**ction theory** *See* **Spectral theory of functions and operators, 58 #7121**

**ctional analysis** ★Функциональный анализ. Вып. 8: Теория операторов. (Russian) [Functional analysis. No. 8: Operator theory] **57** #7206

*See also* **Séminaire: Goulaouic-Schwartz, 52 #8961; Séminaire: Goulaouic-Schwartz, 52 #8962; Séminaire: Goulaouic-Schwartz, 52 #8963; Séminaire: Goulaouic-Schwartz, 52 #8964; Collection: Function spaces and operator equations, 52 #15044; Collection: Functional analysis, 53 #3730** *and* **Nonlinear functional analysis and differential equations, 57 #17314**

**ctional analysis and numerical analysis for nonlinear problems** ★Functional analysis and numerical analysis for nonlinear problems. **58** #2356

**up representations** *See* **Proceedings: Summer School in the Spectral Theory of Operators and the Theory of Group Representation, 52 #6457**

**bert space** *See* **Operators on Hilbert space, 58 #30346**

**bert space operators and operator algebras** ★Hilbert space operators and operator algebras. **49** #11275

**inite-dimensional analysis** *See* **Spectral theory of operators and infinite-dimensional analysis, 55 #11073**

**estigations on linear operators and the theory of functions** ★Исследования по линейным операторам и теории функций. VIII. (Russian) [Investigations on linear operators and the theory of functions. VIII] **58** #17880

**gi Nauki i Tehniki** *See* **Mathematical analysis, 54 #964**

**oto** *See* **Functional analysis and numerical analysis for nonlinear problems, 58 #2356**

**ear operators** *See* **Investigations on linear operators and the theory of functions, 58 #17880**

**ear operators and approximation** ★Linear operators and approximation. **50** #5498

**athematical analysis** ★{Mathematical analysis. Vol. 12. Part 2}. **54** #964

**onlinear functional analysis and differential equations** ★Nonlinear functional analysis and differential equations. **57** #17314

**onlinear operators** *See* **Theory of nonlinear operators, 57 #1154**

**onlinear operators and the calculus of variations** ★Nonlinear operators and the calculus of variations. **58** #12431

**onlinear partial differential equations** *See* **Séminaire: Goulaouic-Lions-Schwartz, 52 #8965**

**onselfadjoint operators** ★Несамосопряженные операторы. (Russian) [Nonselfadjoint operators] **55** #3821

**umerical analysis** *See* **Functional analysis and numerical analysis for nonlinear problems, 58 #2356**

**perator algebras** *See* **Theory of operators and operator algebras, 49 #7801**

**perator equations** *See* **Collection: Function spaces and operator equations, 52 #15044** *and* **Qualitative and approximate methods for the investigation of operator equations, 58 #30349**

**perator ideals** *See* **Study of operator ideals, 58 #30348**

**perator theory** *See* **Hilbert space operators and operator algebras, 49 #11275; Proceedings: Conference on Operator Theory, 49 #11276; Topics in operator theory, 50 #2938; Proceedings: International Symposium on Operator Theory, 52 #15045; Functional analysis, 57 #7206; Spectral theory of operators, 57 #10446** *and* **Spectral theory of functions and operators, 58 #7121**

**perator theory and related subjects** ★Operator theory and related subjects. (Japanese) **58** #30347

**perators in Banach spaces** ★Операторы в банаховых пространствах. (Russian) [Operators in Banach spaces] **58** #2357

**perators on Hilbert space** ★Operators on Hilbert space. (Japanese) **58** #30346

**artial differential equations** *See* **Séminaire: Goulaouic-Schwartz, 52 #8961; Séminaire: Goulaouic-Schwartz, 52 #8962; Séminaire: Goulaouic-Schwartz, 52 #8963; Séminaire: Goulaouic-Schwartz, 52 #8964** *and* **Séminaire: Goulaouic-Lions-Schwartz, 52 #8965**

**roceedings:**

**Conference on Operator Theory** ★Proceedings of a Conference on Operator Theory (Dalhousie University, Halifax, Nova Scotia, April 13th and 14th, 1973). **49** #11276

**International Symposium on Operator Theory** ★{Proceedings of an International Symposium on Operator Theory}. **52** #15045

**Mathematics Faculty of Voronezh State University** *See* **Collection: Function spaces and operator equations, 52 #15044**

**Summer School in the Spectral Theory of Operators and the Theory of Group Representation** ★Труды летней школы по спектральной теории операторов и теории представления групп (Баку, 15 мая–3 июня 1968 г.). (Russian) [Proceedings: Summer School in the Spectral Theory of Operators and the Theory of Group Representation (Baku, May 15–June 3, 1968)] **52** #6457

**ualitative and approximate methods for the investigation of operator equations** ★Качественные и приближенные методы исследования операторных уравнений. Вып. 1. (Russian) [Qualitative and approximate methods for the investigation of operator equations. No. 1] **58** #30349

**adonifying maps** *See* **Séminaire: Goulaouic-Schwartz, 52 #8962**

**esearch on operators in Banach spaces** ★Research on operators in Banach spaces. (Japanese) **58** #30350

**éminaire:**

**Goulaouic-Lions-Schwartz** ★Séminaire Goulaouic-Lions-Schwartz 1974–1975: Équations aux dérivées partielles linéaires et non linéaires. **52** #8965

**Goulaouic-Schwartz** ★Séminaire Goulaouic-Schwartz 1970–1971: Équations aux dérivées partielles et analyse fonctionnelle. **52** #8961

★Séminaire Goulaouic-Schwartz 1971–1972: Équations aux dérivées partielles et analyse fonctionnelle. Deux journées *p*-radonifiantes (25–26 janvier, 1972). **52** #8962

★Séminaire Goulaouic-Schwartz 1972–1973: Équations aux dérivées partielles et analyse fonctionnelle. **52** #8963

★Séminaire Goulaouic-Schwartz 1973–1974: Équations aux dérivées partielles et analyse fonctionnelle. **52** #8964

**Seminar:**

**Functional Analysis** *See* **Collection: Function spaces and operator equations, 52 #15044**

**Spectral properties of operators** ★Спектральные свойства операторов. (Russian) [Spectral properties of operators] **57** #1153

**Spectral theory** *See* **Symposium: Spectral Theory, 50 #5499**

**Spectral theory of functions and operators** ★Спектральная теория функций и операторов. (Russian) [Spectral theory of functions and operators] **58** #7121

**Spectral theory of operators** ★Спектральная теория операторов. (Russian) [Spectral theory of operators] **57** #10446

*See also* **Proceedings: Summer School in the Spectral Theory of Operators and the Theory of Group Representation, 52 #6457**

**Spectral theory of operators and infinite-dimensional analysis** ★Спектральная теория операторов и бесконечномерный анализ. (Russian) [Spectral theory of operators and infinite-dimensional analysis] **55** #11073

**Study of operator ideals** ★Study of operator ideals. (Japanese) **58** #30348

**Summer School:**

**Nonlinear Operators and the Calculus of Variations** *See* **Nonlinear operators and the calculus of variations, 58 #12431**

**Spectral Theory of Operators and the Theory of Group Representation** *See* **Proceedings: Summer School in the Spectral Theory of Operators and the Theory of Group Representation, 52 #6457**

**Theory of Nonlinear Operators** *See* **Theory of nonlinear operators, 57 #1154**

**Symposium:**

**Functional Analysis and Numerical Analysis for Nonlinear Problems** *See* **Functional analysis and numerical analysis for nonlinear problems, 58 #2356**

**Operator Theory** *See* **Proceedings: International Symposium on Operator Theory, 52 #15045**

**Operator Theory and Related Subjects** *See* **Operator theory and related subjects, 58 #30347**

**Operators on Hilbert Space** *See* **Operators on Hilbert space, 58 #30346**

**Research on Operators in Banach Spaces** *See* **Research on operators in Banach spaces, 58 #30350**

**Spectral Theory** ★Spectral Theory Symposium (March 1974). **50** #5499

**Study of Operator Ideals** *See* **Study of operator ideals, 58 #30348**

**Theory of functions** *See* **Investigations on linear operators and the theory of functions, 58 #17880**

**Theory of nonlinear operators** ★Theory of nonlinear operators. **57** #1154

**Theory of operators and operator algebras** ★Teoria operatorilor şi algebre de operatori. (Romanian) [The theory of operators and operator algebras] **49** #7801

**Topics in operator theory** ★Topics in operator theory. **50** #2938

Secondary classifications:

**(Abilov, V. A.)** *See* **Functional analysis, theory of functions, and their applications, (57 #3805)**

**(Akilov, G. P.)** *See* **Operator theory in function spaces, (58 #2114)**

**(Anger, Gottfried)** *See* **Elliptische differentialgleichungen, (48 #682)**

**(Bony, Jean-Michel)** *See* **Colloque: CNRS, Équations aux Dérivées Partielles Linéaires, (49 #11010)**

**(Boutet de Monvel, Louis)** *See* **Colloque: CNRS, Équations aux Dérivées Partielles Linéaires, (49 #11010)**

**(Butzer, Paul L.)** *See* **Linear spaces and approximation, (57 #11998)**

**(Cecconi, J.)** *See* **Spectral analysis, (52 #14684 (EA 53) )**

**(Fife, P. C.)** *See* **Symposium: Rocky Mountain Consortium, Nonlinear Eigenvalue Problems, (47 #5409)**

**(Gagaev, B. M.)** *See* **Theory of functions and functional analysis, (56 #11677)**

**(Garnir, Henry G.)** *See* **Functional analysis and its applications, (49 #11187)**

**(Gehtman, M. M.)** *See* **Functional analysis, theory of functions, and their applications, (57 #3805)**

**(Germain, Paul)** *See* **Applications of methods of functional analysis to problems in mechanics, (58 #25196)**

**(Goulaouic, C.)** *See* **Colloque: CNRS, Équations aux Dérivées Partielles Linéaires, (49 #11010); Publications: Séminaires de Mathématiques, (50 #5150)** *and* **Publications: Séminaires de Mathématiques, (50 #5409)**

**(Hogbe-Nlend, Henri)** *See* **Actes: Colloque d'Analyse Fonctionnelle de Bordeaux, (49 #11181)**

**(Hvedelidze, B. V.)** *See* **Collection: Theory of functions, (52 #3489)**

**(Lions, Jacques-Louis)** *See* **Colloque: CNRS, Équations aux Dérivées Partielles Linéaires, (49 #11010)**

**(Magomedov, G. A.)** *See* **Functional analysis, theory of functions, and their applications, (57 #3805)**

**(Martineau, André)** *See* **Colloque: CNRS, Équations aux Dérivées Partielles Linéaires, (49 #11010)**

**(Maurey, Bernard)** *See* **Séminaire: Maurey-Schwartz, (52 #8851)** *and* **Séminaire: Maurey-Schwartz, (52 #8852)**

**(Mitjagin, B. S.)** *See* **Proceedings: Winter School on Mathematical Programming and Related Questions, (55 #13)** *and* **Mathematical programming and related questions, (55 #17)**

**(Mītropol′s′kiĭ, Ju. O.)** *See* **School: Mathematical, (56 #15261)**

**(Morrel, Bernard B.)** *See* ***K*-theory and operator algebras, (56 #15254)**

**(Mushelišvili, N. I.)** *See* **Collection: Theory of functions, (52 #3489)**

**(Nayroles, Bernard)** *See* **Applications of methods of functional analysis to problems in mechanics, (58 #25196)**

**(Nikol′skiĭ, N. K.)** *See* **Investigations on linear operators and the theory of functions, (48 #5762); Investigations in linear operators and function theory, (49 #5761); Investigations on linear operators and the theory of functions, (50 #12527); Investigations on linear operators and the theory of functions, (53 #5219)** *and* **Investigations on linear operators and the theory of functions, (58 #9959)**

**(Ramakrishnan, Alladi)** *See* **Functional analysis and its applications, (49 #11187)**

**(Schwartz, Laurent)** *See* **Colloque: CNRS, Équations aux Dérivées Partielles Linéaires,** (49 #11010); **Séminaire: Laurent Schwartz,** (52 #8850); **Séminaire: Maurey-Schwartz,** (52 #8851) *and* **Séminaire: Maurey-Schwartz,** (52 #8852)

**(Šestopal, A. F.)** *See* **School: Mathematical,** (56 #15261)

**(Singer, I. M.)** *See* ***K*-theory and operator algebras,** (56 #15254)

**(Spencer, Donald C.)** *See* **Partial differential equations,** (48 #6620)

**(Štraus, A. V.)** *See* **Functional analysis,** (51 #1317); **Functional analysis,** (55 #6156); **Functional analysis,** (57 #7089) *and* **Functional analysis,** (58 #29990)

**(Sz.-Nagy, Béla)** *See* **Linear spaces and approximation,** (57 #11998)

**(Unni, K. R.)** *See* **Functional analysis and its applications,** (49 #11187)

**(Williamson, J. H.)** *See* **Functional analysis and its applications,** (49 #11187)

**Zuhovickiĭ, S. I.** Fifth Winter School-Symposium on Mathematical Programming and Related Questions. (Russian) (52 #9976)

Sixth Winter School-Symposium on Mathematical Programming and Related Questions. (Russian) (52 #9977)

**Actes:**

**Colloque d'Analyse Fonctionnelle de Bordeaux** ★Actes du Colloque d'Analyse Fonctionnelle. (49 #11181)

**Applications of methods of functional analysis to problems in mechanics** ★Applications of methods of functional analysis to problems in mechanics. (58 #25196)

**Approximation** *See* **Linear spaces and approximation,** (57 #11998)

**Athens, Ga.** *See* ***K*-theory and operator algebras,** (56 #15254)

**Bull. Soc. Math. France Mém.** *See* **Actes: Colloque d'Analyse Fonctionnelle de Bordeaux,** (49 #11181)

**Centro Internazionale Mathematico Estivo (C.I.M.E.)** *See* **Spectral analysis,** (52 #14684 (EA 53) ) *and* **Differential operators on manifolds,** (58 #18514)

**Collection:**

**Theory of functions** ★Сборник работ по теории функций. 6. (Russian) [Collection of articles on the theory of functions. 6] (52 #3489)

**Colloque:**

**Analyse Fonctionnelle** ★Troisième Colloque sur l'Analyse Fonctionnelle tenu à Liège du 14 au 16 septembre 1970. (52 #8854)

**Analyse Fonctionnelle de Bordeaux** *See* **Actes: Colloque d'Analyse Fonctionnelle de Bordeaux,** (49 #11181)

**CNRS, Équations aux Dérivées Partielles Linéaires** ★Colloque International C.N.R.S. sur les Équations aux Dérivées Partielles Linéaires (tenu à l'Université de Paris-Sud, Orsay, du 13 au 20 septembre 1972). (49 #11010)

**Conference:**

**Functional Analysis and its Applications** *See* **Functional analysis and its applications,** (49 #11187)

***K*-Theory and Operator Algebras** *See* ***K*-theory and operator algebras,** (56 #15254)

**Linear Spaces and Approximation** *See* **Linear spaces and approximation,** (57 #11998)

**Differential operators on manifolds** ★Differential operators on manifolds. (58 #18514)

**Elliptische differentialgleichungen** ★Elliptische Differentialgleichungen, Band II (Kolloquium vom 17. August bis 24. August 1969 in Berlin). (48 #682)

**Evolution** *See* **Symposia Mathematica,** (48 #6621)

**Function spaces** *See* **Operator theory in function spaces,** (58 #2114)

**Function theory** *See* **Investigations in linear operators and function theory,** (49 #5761)

**Functional analysis** ★Функциональный анализ. Вып. 1. (Russian) [Functional analysis. No. 1] (51 #1317)

★Функциональный анализ. Вып. 2. (Russian) [Functional analysis. No. 2] (55 #6156)

★Функциональный анализ. Вып. 6: Теория операторов в линейных пространствах. (Russian) [Functional analysis. No. 6: Theory of operators in linear spaces] (57 #7089)

★Функциональный анализ. Вып. 7. (Russian) [Functional analysis. No. 7] (58 #29990)

*See also* **Actes: Colloque d'Analyse Fonctionnelle de Bordeaux,** (49 #11181); **Publications: Séminaires de Mathématiques,** (50 #5150); **Publications: Séminaires de Mathématiques,** (50 #5409); **Theory of functions and functional analysis,** (56 #11677) *and* **Applications of methods of functional analysis to problems in mechanics,** (58 #25196)

**Functional analysis and applications** ★Functional analysis and its applications. (49 #11187)

*See also* **Proceedings: Winter School on Mathematical Programming and Related Questions,** (55 #13)

**Functional analysis, theory of functions and their applications** ★Функциональный анализ, теория функций и их приложения. Вып. 2, Часть 1. (Russian) [Functional analysis, theory of functions, and their applications. No. 2, Part 1] (57 #3805)

**Functional spaces** *See* **Symposia Mathematica,** (48 #6621)

**Geometry of Banach spaces** *See* **Séminaire: Maurey-Schwartz,** (52 #8852)

**Hypoelliptic equations** *See* **Symposia Mathematica,** (48 #6621)

**INDAM Convegno:**

**Equazioni Ipoellittiche e Spazi Funzionali** *See* **Symposia Mathematica,** (48 #6621)

**Problemi di Evoluzione** *See* **Symposia Mathematica,** (48 #6621)

**Investigations in linear operators and function theory** ★Investigations in linear operators and function theory. Part II. (49 #5761)

**Investigations on linear operators and the theory of functions** ★Исследования по линейным операторам и теории функций. IV. (Russian) [Investigations on linear operators and the theory of functions. IV] (48 #5762)

★Исследования по линейным операторам и теории функций. V. (Russian) [Investigations on linear operators and the theory of functions. V] (50 #12527)

★Исследования по линейным операторам и теории функций. VI. (Russian) [Investigations on linear operators and theory of functions. VI] (53 #5219)

★Исследования по линейным операторам и теории функций. VII. (Russian) [Investigations on linear operators and the theory of functions. VII] (58 #9959)

***K*-theory and operator algebras** ★*K*-theory and operator algebras. (56 #15254)

**Kaciveli** *See* **School: Mathematical,** (56 #15261)

**$L^p$ spaces** *See* **Séminaire: Maurey-Schwartz,** (52 #8851) *and* **Séminaire: Maurey-Schwartz,** (52 #8852)

**Linear operators** *See* **Investigations on linear operators and the theory of functions** (48 #5762); **Investigations in linear operators and function theory,** (49 #5761); **Investigations on linear operators and the theory of functions,** (50 #12527); **Investigations on linear operators and the theory of functions,** (53 #5219) *and* **Investigations on linear operators and the theory of functions,** (58 #9959)

**Linear spaces** *See* **Functional analysis,** (57 #7089)

**Linear spaces and approximation** ★Linear spaces and approximation. (57 #11998)

**Marseille** *See* **Applications of methods of functional analysis to problems in mechanics** (58 #25196)

**Mathematical programming** *See* **Zuhovickiĭ, S. I.,** (52 #9976); **Zuhovickiĭ, S. I.,** (52 #9977) *and* **Proceedings: Winter School on Mathematical Programming and Related Questions,** (55 #13)

**Mathematical programming and related questions** ★Математическое программирование и смежные вопросы (Труды седьмой зимней школы, Дрогобыч 1974). (Russian) [Mathematical programming and related questions (Proceedings o the Seventh Winter School, Drogobych, 1974)] (55 #17)

**Mechanics** *See* **Applications of methods of functional analysis to problems in mechanics** (58 #25196)

**Nalchik** *See* **School: Mathematical,** (56 #15261)

**Nonlinear eigenvalue problems** *See* **Symposium: Rocky Mountain Consortium, Nonlinear Eigenvalue Problems,** (47 #5409)

**Novosibirsk** *See* **Operator theory in function spaces,** (58 #2114)

**Oberwolfach** *See* **Linear spaces and approximation,** (57 #11998)

**Operator algebras** *See* ***K*-theory and operator algebras,** (56 #15254)

**Operator theory in function spaces** ★Теория операторов в функциональных пространствах. (Russian) [Operator theory in function spaces] (58 #2114)

**Operators** *See* **Functional analysis,** (57 #7089)

**Partial differential equations** ★Partial differential equations. (48 #6620)

*See also* **Colloque: CNRS, Équations aux Dérivées Partielles Linéaires,** (49 #11010)

**Proceedings: Winter School on Mathematical Programming and Related Questions** ★Труды Шестой Зимней Школы по Математическому Программированию и Смежным Вопросам (г. Дрогобыч, январь 1973 г.). (Russian) [Proceedings of the Sixth Winter School on Mathematical Programming and Related Questions (Drogobych, January 1973)] (55 #13)

*See also* **Mathematical programming and related questions,** (55 #17)

**Proceedings of Symposia in Pure Mathematics** *See* **Partial differential equations,** (48 #6620)

**Publications:**

**Séminaires de Mathématiques** ★Publications des Séminaires de Mathématiques de l'Université de Rennes. Année 1968–1969. (50 #5409)

★Publications des Séminaires de Mathématiques de l'Université de Rennes. Année 1969–1970. (50 #5150)

**Radonifying maps** *See* **Séminaire: Laurent Schwartz,** (52 #8850); **Séminaire: Maurey-Schwartz,** (52 #8851) *and* **Séminaire: Maurey-Schwartz,** (52 #8852)

**School:**

**Mathematical** ★Десятая математическая школа (пос. Кацивели/Нальчик, 1972 г.). (Russian) [Tenth Mathematical School (Kaciveli/Nalchik, 1972)] (56 #15261)

**Operator Theory in Function Spaces** *See* **Operator theory in function spaces,** (58 #2114)

**Séminaire:**

**Maurey-Schwartz** ★Séminaire Maurey-Schwartz. Année 1972–1973: Espaces $L^p$ et applications radonifiantes. (52 #8851)

★Séminaire Maurey-Schwartz 1973–1974: Espaces $L^p$, applications radonifiantes et géométrie des espaces de Banach. (52 #8852)

**Laurent Schwartz** ★Séminaire Laurent Schwartz 1969–1970: Applications radonifiantes. (52 #8850)

**Séminaires:**

**Analyse Fonctionnelle** *See* **Publications: Séminaires de Mathématiques,** (50 #5150) *and* **Publications: Séminaires de Mathématiques,** (50 #5409)

**Spectral analysis** ★Spectral analysis. (52 #14684 (EA 53) )

**Spectral theory** *See* **Functional analysis,** (58 #29990)

**Summer Research Institute:**

**American Mathematical Society** *See* **Partial differential equations,** (48 #6620)

**Summer School:**

**Mathematical** *See* **School: Mathematical,** (56 #15261)

**Symposia Mathematica** ★Symposia Mathematica. Vol. VII. (48 #6621)

**Symposium:**

**IUTAM/IMU, Applications of Functional Analysis to Problems in Mechanics** *Se* **Applications of methods of functional analysis to problems in mechanics,** (58 #25196)

**Rocky Mountain Consortium, Nonlinear Eigenvalue Problems** ★{Rocky Mountai Consortium Symposium on Nonlinear Eigenvalue Problems (Santa Fe, N.M. June–July 1971)}. (47 #5409)

**Tagung:**

**WK Analysis** ★{Tagungsbericht zur ersten Tagung der WK Analysis (Martin-Luther Universität, Halle-Wittenberg, 19. bis 23. Oktober 1970)}. (48 #5790)

**Theory of functions** *See* **Investigations on linear operators and the theory of functions** (48 #5762); **Investigations on linear operators and the theory of functions,** (50 #12527); **Collection: Theory of functions,** (52 #3489); **Investigations on linea operators and the theory of functions,** (53 #5219); **Functional analysis, theory o functions, and their applications,** (57 #3805) *and* **Investigations on linear operator and the theory of functions,** (58 #9959)

**Theory of functions and functional analysis** ★Теория функций и функциональны анализ. (Russian) [Theory of functions and functional analysis] (56 #11677)

**Theory of operators in linear spaces** *See* **Mathematical programming and related questions,** (55 #17) *and* **Functional analysis,** (57 #7089)

**nna** *See* **Differential operators on manifolds**, (58 #18514)

**er School:**

**Mathematical Programming and Related Questions** *See* **Zuhovickiĭ, S. I.**, (52 #9976); **Zuhovickiĭ, S. I.**, (52 #9977); **Proceedings: Winter School on Mathematical Programming and Related Questions**, (55 #13) *and* **Mathematical programming and related questions**, (55 #17)

**ter School-Symposium:**

**Mathematical Programming and Related Questions** *See* **Zuhovickiĭ, S. I.**, (52 #9976) *and* **Zuhovickiĭ, S. I.**, (52 #9977)

**analysis** *See* **Tagung: WK Analysis**, (48 #5790)

## Axx Single linear operators: general theory

**s, William G.** ★Self-adjoint operators. **57** #7207

**mos, Paul R.** Some unsolved problems of unknown depth about operators on Hilbert space. **56** #9292

Secondary classifications:

**lov, G. P.** *See* **Kantorovič, L. V.**, (**56** #16402)

**as, John S.** Algebraic structure of infinite dimensional linear systems in Hilbert space. (**58** #33219)

**rman, M. Š.)** *See* **Problems of mathematical physics**, (**49** #4725) *and* **Spectral theory**, (**49** #10505)

**keley, W. T. F.** *See* **Pritchard, Anthony J.**, (**58** #32275)

**edrichs, Kurt O.** ★Spectral theory of operators in Hilbert space. (**57** #10444)

**lfi, L.** Inclusive electroproduction in quantum field theory. (**58** #25551)

**erden, R.)** *See* **Livšic, M. S.**, (**49** #12116)

**rtling, Joerg** Numerical treatment of algebraic integral equations by variational methods. (**52** #2248)

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**Rácz, Andrei** Unitary skew-dilations. (Romanian. English summary) **50** #8114
**Sahnovič, L. A.** The $J$-unitary dilation of a bounded operator. (Russian) **50** #10863
**Schubert, C. F.** On a conjecture of L. B. Page. **47** #4030
*See also* **Carswell, J. G. W.**, **51** #11136
**Stroescu, Elena** $\mathfrak{A}$-spectral dilations for operators on Banach spaces. **47** #5624
Spectral dilations of operators on Banach spaces. (Romanian. English summary) **51** #3926
Isometric dilations of contractions on Banach spaces. **48** #4776
Functorial theory of the dilation on Banach spaces. **50** #14285
**Suciu, Ion** Dilatation and extension theorems for operator-valued mappings. (Romanian. English summary) **51** #6453
**Szafraniec, Franciszek Hugon** On the boundedness condition involved in dilation theory. (Russian summary) **54** #13599
A general dilation theorem. (Russian summary) **56** #3651
Dilations on involution semigroups. **57** #13532
**Sz.-Nagy, Béla** (*with* Foiaş, C.) The "lifting theorem" for intertwining operators and some new applications. **54** #5863
★Unitary dilations of Hilbert space operators and related topics. **58** #2364
A general view on unitary dilations. **52** #15050
**Taĭmanov, A. D.** The extension of linear operators. (Russian) **48** #6973
**Takai, Hiroshi** (*with* Yamada, Hiroaki) A note on the dilation theorems. **47** #2395
*See also* **Nakamura, Masahiro**, **47** #2396
**Tôn-Thât Long** Contributions à l'étude spectrale des contractions de l'espace de Hilbert. **49** #11282
Propriétés analytiques des valeurs et vecteurs propres des opérateurs de l'espace de Hilbert. (English summary) **51** #6452
**Weron, Aleksander** Remarks on positive-definite operator valued functions in Banach spaces. (Russian summary) **55** #6211
*See also* **Górniak, J.**, **54** #13598
**Yadav, B. S.** (*with* Jain, Rama) Polynomially bounded operators and spectral $\rho$-dilations. **56** #12932
**Yamada, Hiroaki** *See* **Takai, Hiroshi**, **47** #2395

Secondary classifications:

**Abrahamse, M. B.** (*with* Douglas, Ronald G.) A class of subnormal operators related to multiply-connected domains. (**53** #1327)
**Akcoglu, Mustafa A.** (*with* Sucheston, Louis) Dilations of positive contractions on $L_p$ spaces. (**56** #16433)
**Anderson, Joel** (*with* Stampfli, Joseph G.) Commutators and compressions. (**47** #874)
**Doležal, Václav** (*with* Sanborn, Jon) Extendability of operators defined on testing function spaces. (**51** #8809)
**Douglas, Ronald G.** *See* **Abrahamse, M. B.**, (**53** #1327)
**Faulkner, Gary D.** (*with* Shonkwiler, R. W.) Cosine representations of abelian $*$-semigroups and generalized cosine operator functions. (**58** #17952)
**Gaşpar, Dumitru** Spectral $\rho$-dilations for the representations of function algebras. (Romanian summary) (**48** #4744)
On a certain class of representations of function algebras. (**46** #6047)
**Itagaki, Yoshio** Remark on the essential spectrum of symmetrizable operators. (**47** #877)
**Kreĭn, M. G.** (*with* Ovčarenko, I. Ē.) On the theory of generalized resolvents of nondensely defined Hermitian contractions. (Russian. English summary) (**57** #17359)
(*with* Ovčarenko, I. Ē.) *Q*-functions and *sc*-resolvents of nondensely defined Hermitian contractions. (Russian) (**58** #2416)
**McGrath, S. A.** On almost everywhere convergence of Abel means of contraction semigroups. (**58** #23753)
**Muhly, Paul S.** Toeplitz operators and semigroups. (**46** #9790)
**Ovčarenko, I. Ē.** *See* **Kreĭn, M. G.**, (**57** #17359) *and* **Kreĭn, M. G.**, (**58** #2416)
**Sanborn, Jon** *See* **Doležal, Václav**, (**51** #8809)
**Shonkwiler, R. W.** *See* **Faulkner, Gary D.**, (**58** #17952)
**Słociński, Marek** Unitary dilation of two-parameter semi-groups of contractions. (Russian summary) (**52** #1409)
**Šmul′jan, Ju. L.** Operator extension theory, and spaces with indefinite metric. (Russian) (**51** #3952)
**Stampfli, Joseph G.** *See* **Anderson, Joel**, (**47** #874)
**Sucheston, Louis** *See* **Akcoglu, Mustafa A.**, (**56** #16433)
**Virot, Bernard** Modèles d'opérateurs linéaires et translations unilatérales simples. (**58** #30413a)
Modèles d'opérateurs linéaires et translations unilatérales simples. (**58** #30413b)

### 47A25 Spectral sets

**Clancey, Kevin F.** (*with* Putnam, C. R.) Normal parts of certain operators. **47** #2397a
**Crabb, Michael J.** (*with* Davie, A. M.) von Neumann's inequality for Hilbert space operators. **51** #1432
**Davie, A. M.** *See* **Crabb, Michael J.**, **51** #1432
**Fujii, Masatoshi** On some examples of non-normal operators. **47** #2397b
**Hirschfeld, Rudolf A.** Operators with thin spectral sets. **56** #1098
**Holbrook, John A. R.** von Neumann's inequality and the Poisson radius for operators. **50** #8115
Distortion coefficients for cryptocontractions. **58** #2365
**Ljubič, Ju. I.** *See* **Lomonosov, V. I.; et al.**, **51** #11137
**Lomonosov, V. I.** (*with* Ljubič, Ju. I.; Macaev, V. I.) Duality of spectral subspaces, and conditions for the separability of the spectrum of a bounded linear operator. (Russian) **51** #11137
**Lubin, Arthur** Research notes on von Neumann's inequality. **57** #13533
**Macaev, V. I.** *See* **Lomonosov, V. I.; et al.**, **51** #11137
**Pollack, Fredric M.** Properties of the matrix range of an operator. **47** #5625
**Putnam, C. R.** *See* **Clancey, Kevin F.**, **47** #2397a
**Saitô, Teishirô** A theorem on boundary spectra. **46** #4240
**Sheth, I. H.** On a conjecture of Istrătescu. **53** #6338
**Šmul′jan, Ju. L.** The resolvent matrix of an operator colligation. (Russian) **50** #8147
**Stampfli, Joseph G.** A local spectral theory for operators. III. Resolvents, spectral sets and similarity. **45** #4182
**Varopoulos, Nicholas Th.** On an inequality of von Neumann and an application of the metric theory of tensor products to operators theory. **50** #8116

Secondary classifications:

**Ball, Joseph A.** Rota's theorem for general functional Hilbert spaces. (**57** #1161)
**Mlak, W.** Partitions of spectral sets. (**46** #673)
**Peller, V. V.** L'inégalité de von Neumann, la dilatation isométrique et l'approximation par isométries dans $L^p$. (English summary) (**58** #23733)
**Pincus, Joel D.** Some applications of operator valued analytic functions of two complex variables. (**57** #13560)

### 47A30 Norms (inequalities, more than one norm, etc.)

**Burillo López, Pedro J.** A characterization of the continuity of linear operators in Hilbert space. (Spanish) **46** #6070
**Chui, Charles K.** (*with* Legg, David A.; Smith, Philip W.; Ward, Joseph D.) On a question of Olsen concerning compact perturbations of operators. **56** #9295
**Coifman, Ronald R.** (*with* Rochberg, Richard; Weiss, Guido) Applications of transference: the $L^p$ version of von Neumann's inequality and the Littlewood-Paley-Stein theory. **58** #17898
**Dixon, P. G.** The von Neumann inequality for polynomials of degree greater than two. **55** #1104
**Garnir, Henry G.** Démonstration élémentaire d'une inégalité relative aux opérateurs normaux commutatifs. (Italian summary) **52** #1357
**Holbrook, John A. R.** Distortion coefficients for crypto-unitary operators. **57** #10455
**Hutton, C. V.** (*with* Morrell, J. S.; Retherford, J. R.) Approximation numbers and Kolmogoroff diameters of bounded linear operators. **49** #1166
**Kato, Yoshinobu** (*with* Moriya, Nobuhiro) Maeda's inequality for pseudoinverses. **56** #6434
**Khurana, Surjit Singh** A vector form of Phillips' lemma. **50** #7992
**Kolev, L. V.** The norm of a linear transformation from a Banach space into a Hilbe space. (Bulgarian. Russian and English summaries) **53** #6339
**Legg, David A.** *See* **Chui, Charles K.; et al.**, **56** #9295
**Levčenkov, V. S.** Examples of linear homomorphisms in Banach spaces with Schaude basis, sequentially-compact approximable by continuous linear transformations. (Russian. English summary) **57** #1177
**Moriya, Nobuhiro** *See* **Kato, Yoshinobu**, **56** #6434
**Morrell, J. S.** *See* **Hutton, C. V.; et al.**, **49** #1166
**Paraska, V. I.** A remark on the distance between linear operators in the gap metric (Russian) **53** #11396
**Peller, V. V.** Approximation by isometries, and V. I. Macaev's conjecture for absolute contractions of the space $L^p$. (Russian) **58** #23667
**Putnam, C. R.** Spectra and measure inequalities. **58** #7136
**Retherford, J. R.** *See* **Hutton, C. V.; et al.**, **49** #1166
**van Riemsdijk, D. J.** Some metric inequalities in the space of bounded linear operators on a separable Hilbert space. **48** #6974
**Rochberg, Richard** *See* **Coifman, Ronald R.; et al.**, **58** #17898
**Šelepen′, S. A.** Estimation of the norm of the inverse operator for a functional equation of the second kind. (Russian) **45** #4681
An estimate of the norm of an inverse operator by the method of orthogonal complements. (Russian) **58** #2366
**Sereda, P. P.** *See* **Verbickiĭ, I. È.**, **54** #5864
**Smith, Philip W.** *See* **Chui, Charles K.; et al.**, **56** #9295
**Varopoulos, Nicholas Th.** On a commuting family of contractions on a Hilbert space. **55** #3829
**Verbickiĭ, I. È.** (*with* Sereda, P. P.) The norm of the complex extension of an operator. (Russian) **54** #5864
**Vu Kuok Fong** Inequalities for powers of linear operators and for quadratic forms. (Russian. English summary) **57** #3883
**Ward, Joseph D.** *See* **Chui, Charles K.; et al.**, **56** #9295
**Webb, Jeffrey Ronald Leslie** On seminorms of operators. **49** #7807
**Weiss, Guido** *See* **Coifman, Ronald R.; et al.**, **58** #17898

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**Arestov, V. V.** Approximation of unbounded operators and related problems. (Russian) (**58** #29714)
**Bauer, Friedrich L.** Positivity and norms. (**54** #6476)
**Bollobás, Béla** (*with* Galanis, E.) An inequality involving a Hermitian operator and its square in a normed space. (**58** #30427)
**Galanis, E.** *See* **Bollobás, Béla**, (**58** #30427)
**Maddox, Ivor J.** (*with* Wickstead, Anthony) Crone's theorem for operators. (**57** #7248)
**Peller, V. V.** An analogue of J. von Neumann's inequality for the space $L^p$. (Russian) (**55** #8876)
**Schäffer, Juan Jorge** Norms and determinants of operators. (**53** #10837 (EA **54**) )
**Šelepen′, S. A.** Estimation of the norm of the inverse operator for a Fredholm integral equation. (Russian) (**45** #4682)
**Wickstead, Anthony** *See* **Maddox, Ivor J.**, (**57** #7248)

### 47A35 Ergodic theory [See also 28A65.]

**Akcoglu, Mustafa A.** (*with* Sucheston, Louis) On operator convergence in Hilbert space and in Lebesgue space. **48** #4777
(*with* Huneke, J. P.; Rost, Hermann) A counter example to the Blum Hanson theorem in general spaces. **50** #2947
(*with* Sucheston, Louis) On the dominated ergodic theorem in $L_2$ space. **48** #12094
(*with* Sucheston, Louis) Remarks on dilations in $L_p$-spaces. **51** #13729
(*with* Sucheston, Louis) Weak convergence of positive contractions implies strong convergence of averages. **51** #13730
(*with* Sucheston, Louis) On positive dilations to isometries in $L_p$ spaces. **56** #9296
(*with* Miller, H. D. B.) Dominated estimates in Hilbert space. **53** #1302
(*with* Kopp, P. Ekkehard) Construction of dilations of positive $L_p$-contractions. **56** #6435
**Anzai, Kazuo** On a mean ergodic theorem for several operators. **58** #7137
On the weak conditions for mean ergodic theorems. **58** #7138
The mean convergence for ergodic theorems. **55** #8841
**Atalla, Robert E.** On the mean convergence of Markov operators. **54** #3443
(*with* Sine, Robert) Random Markov mappings. **53** #14170
On the ergodic theory of contractions. **54** #5865
**Baxter, John Robert** (*with* Chacon, R. V.) A local ergodic theorem on $L_p$. **50** #14286
**Blum, Julius R.** (*with* Mizel, Victor J.) A generalized Weyl equidistribution theorem for operators, with applications. **48** #6975
(*with* Reich, Jakob I.) A mean ergodic theorem for families of contractions in Hilbert space. **57** #13534
**Bray, Georges** À propos de la généralisation d'un résultat de théorie ergodique à des espaces uniformément convexes. **51** #13731
**Brunel, Antoine** (*with* Fong, Humphrey; Sucheston, Louis) An ergodic super-property of Banach spaces defined by a class of matrices. **51** #1433
Sur les sommes d'itérés d'un opérateur positif. **58** #23668
**Butzer, Paul L.** (*with* Westphal, Ursula) Ein Operatorenkalkül für das approximationstheoretische Verhalten des Ergodensatzes im Mittel. **52** #8968
**Chacon, R. V.** *See* **Baxter, John Robert**, **50** #14286
**Chersi, Franco** (*with* Invernizzi, S.) Some complements to ergodic theorems for vector-valued functions. (Italian summary) **58** #23669
**Choquet, Gustave** Sur certaines moyennes associées à un opérateur positif. **57** #17319

**Munter, P.** L'ergodisme, de l'hypothèse de Boltzmann-Maxwell au théorème de Chacon-Ornstein. **52** #15051
**eshpande, M. V.** Some applications of spectral analysis to ergodic theory. **52** #15052
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**otson, W. G., Jr.** Mean ergodic theorems and iterative solution of linear functional equations. **46** #687
**oguel, Shaul R.** More on the "zero-two" law. **55** #1105
**ong, Humphrey** Weak convergence of semigroups implies strong convergence of weighted averages. **53** #8928 (E **54** #5868)
Erratum to "Weak convergence of semigroups implies strong convergence of weighted averages" (Proc. Amer. Math. Soc. **56** (1976), 157–161). **54** #5868
*See also* **Brunel, Antoine; et al.**, **51** #1433
**uz, Wawrzyniec** Ergodicity in classical and quantum statistical mechanics. **54** #8320 (E **57** #18673)
**lasegawa, Shigeru** (*with* Satō, Ryōtarō; Tsurumi, Shigeru) Vector valued ergodic theorems for a one-parameter semigroup of linear operators. **57** #7210
**liai, Fumio** (*with* Satō, Ryōtarō) Mean ergodic theorems for semigroups of positive linear operators. **58** #30367
**luneke, J. P.** *See* **Akcoglu, Mustafa A.; et al.**, **50** #2947
**nvernizzi, S.** *See* **Chersi, Franco**, **58** #23669
**strățescu, Vasile I.** On a class of operators and ergodic theory. II. **57** #7211
**ones, Lee Kenneth** An elementary lemma on sequences of integers and its applications to functional analysis. **47** #5626
A generalization of the mean ergodic theorem in Banach spaces. **51** #1434
(*with* Lin, Michael) Ergodic theorems of weak mixing type. **53** #8929
**Kern, Martin** (*with* Nagel, Rainer J.; Palm, Günther) Dilations of positive operators: construction and ergodic theory. **58** #12448
**Kijima, Yōichi** (*with* Takahashi, Wataru) Adjoint ergodic theorems for amenable semigroups of operators. **52** #1358
**Kim, Choo Whan** Approximations of doubly substochastic operators. **52** #8969
**Koliha, J. J.** Ergodic theory and averaging iterations. **49** #5886
(*with* Leung, A. P.) Ergodic families of affine operators. **52** #8970
**Komatsu, Hikosaburo** An ergodic theorem. **55** #8842
**Kopp, P. Ekkehard** Abelian ergodic theorems for vector-valued functions. **52** #1359 (E **53** #14171)
Corrigendum: "Abelian ergodic theorems for vector-valued functions" (Glasgow Math. J. **16** (1975), 57–60). **53** #14171
*See also* **Akcoglu, Mustafa A.**, **56** #6435
**Kubokawa, Yoshihiro** Ergodic theorems for contraction semi-groups. **53** #1303
**Lam, Ling Fai** A fixed point theorem for positive operators on $KB$ spaces. **54** #11080
**Leung, A. P.** *See* **Koliha, J. J.**, **52** #8970
**Leviatan, Dany** (*with* Ramanujan, Melapalayam S.) A generalization of the mean ergodic theorem. **46** #2465
(*with* Westphal, Ursula) On the mean ergodic theorem and approximation. **51** #3927
Saturation theorems related to the mean ergodic theorem. **50** #8117
**Lin, Michael** On the uniform ergodic theorem. **54** #5869
On the uniform ergodic theorem. II. **54** #5870
*See also* **Jones, Lee Kenneth**, **53** #8929
**Lloyd, Stuart P.** On the mean ergodic theorem of Sine. **56** #9297
**Luecke, Glenn R.** Norm convergence of $T^n$. **57** #1159
**Marek, Ivo** A note on $\mathcal{K}$-stochastic operators. (Czech summary) **47** #5627
**McCabe, Robert** (*with* Shields, Paul C.) A class of Markov shifts which are Bernoulli shifts. **45** #947
**McGrath, S. A.** Two ergodic theorems for convex combinations of commuting isometries. **47** #7473
On the local ergodic theorems of Krengel, Kubokawa, and Terrell. **54** #5866
An abelian ergodic theorem for semigroups in $L_p$ space. **52** #15053
**Miller, H. D. B.** *See* **Akcoglu, Mustafa A.**, **53** #1302
**Miyajima, Shizuo** A note on reduction of positive operators. **50** #8118
**Mizel, Victor J.** *See* **Blum, Julius R.**, **48** #6975
**Nagel, Rainer J.** Mittelergodische Halbgruppen linearer Operatoren. (French and English summaries) **49** #11283
Ergodic and mixing properties of linear operators. **52** #11628
*See also* **Kern, Martin; et al.**, **58** #12448
**Niiro, Fumio** (*with* Sawashima, Ikuko) Correction to: "Reduction of a sub-Markov operator to its irreducible components" (Natur. Sci. Rep. Ochanomizu Univ. **24** (1973), 35–59). **55** #8843
**Padhye, S. M.** *See* **Deshpande, M. V.**, **58** #2367
**Palm, Günther** *See* **Kern, Martin; et al.**, **58** #12448
**Patil, D. J.** Mean ergodic theorem in reflexive spaces. **56** #1099
**Ramanujan, Melapalayam S.** *See* **Leviatan, Dany**, **46** #2465
**Reich, Jakob I.** *See* **Blum, Julius R.**, **57** #13534
**Rost, Hermann** *See* **Akcoglu, Mustafa A.; et al.**, **50** #2947
**Rubinov, A. M.** A certain sublinear functional. (Russian) **58** #30368
**Sakai, Yūji** (*with* Shimogaki, Tetsuya) Equimeasurability of functions and doubly stochastic operators. **46** #7945
**Satō, Ryōtarō** On a general ratio ergodic theorem with weighted averages. **46** #2455
On the individual ergodic theorem for positive operators. **46** #7934
On the limit of weighted operator averages. **49** #5887
On Akcoglu and Sucheston's operator convergence theorem in Lebesgue space. **49** #5888
On the individual ergodic theorem for subsequences. **49** #5889
A note on operator convergence for semigroups. **49** #5890
An Abel-maximal ergodic theorem for semi-groups. **51** #6454
Positive contractions on $L_1$-spaces. **52** #11629
Ergodic theorems for semi-groups in $L_p$, $1<p<\infty$. **49** #7808
A mean ergodic theorem. **51** #11138
A note on a local ergodic theorem. **51** #1435
On mean ergodic theorems for positive operators in Lebesgue space. **53** #1304
A mean ergodic theorem for a contraction semigroup in Lebesgue space. **53** #3736
Ergodic theorems for semigroups of positive operators. **57** #7212
The individual ergodic theorem for linear operators. (Japanese) **58** #7139
Convex combinations of commuting affine operators. **58** #2368
*See also* **Hasegawa, Shigeru; et al.**, **57** #7210 *and* **Hiai, Fumio**, **58** #30367
**Sawashima, Ikuko** *See* **Niiro, Fumio**, **55** #8843
**Shields, Paul C.** *See* **McCabe, Robert**, **45** #947
**Shimogaki, Tetsuya** *See* **Sakai, Yūji**, **46** #7945
**Sine, Robert** An example in the theory of stable Markov operators. **48** #902
Convex combinations of uniformly mean stable Markov operators. **51** #11139
*See also* **Atalla, Robert E.**, **53** #14170
**Sucheston, Louis** *See* **Akcoglu, Mustafa A.**, **48** #4777; **Akcoglu, Mustafa A.**, **48** #12094; **Brunel, Antoine; et al.**, **51** #1433; **Akcoglu, Mustafa A.**, **51** #13729; **Akcoglu, Mustafa A.**, **51** #13730 *and* **Akcoglu, Mustafa A.**, **56** #9296
**Takahashi, Wataru** *See* **Kijima, Yōichi**, **52** #1358
**Terrell, Thomas R.** A ratio ergodic theorem for operator semigroups. (Italian summary) **48** #903
The local ergodic theorem and semigroups of nonpositive operators. **50** #1026
**de la Torre, Alberto** A simple proof of the maximal ergodic theorem. **54** #5867
**Tsurumi, Shigeru** An ergodic theorem for a semigroup of linear contractions. **49** #5891
*See also* **Hasegawa, Shigeru; et al.**, **57** #7210
**Usačev, E. S.** Adaptation, stability, and ergodicity. (Russian) (Not reviewed)
**Westphal, Ursula** *See* **Leviatan, Dany**, **51** #3927 *and* **Butzer, Paul L.**, **52** #8968
**Yoshimoto, Takeshi** Induced contraction semigroups and random ergodic theorems. **57** #17320
An ergodic theorem for noncommutative operators. **53** #11397

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**Ajupov, Š. A.** The ergodic theorem in $O^*$-algebras. (Russian) (**56** #1092)
**Akcoglu, Mustafa A.** (*with* Sucheston, Louis) On weak and strong convergence of positive contractions in $L_p$ spaces. (**50** #13445)
A pointwise ergodic theorem in $L_p$-spaces. (**53** #761)
Positive contractions of $L_1$-spaces. (**52** #700)
**Archbold, Robert J.** A mean ergodic theorem associated with the free group on two generators. (**56** #1080)
**Atalla, Robert E.** Generalized averaging operators and matrix summability. (**47** #2422)
**Bair, Jacques** On a property of extended sublinear functionals. (German and French summaries) (**56** #16319)
**Bastian, Joseph J.** A decomposition of weighted translation operators. (**54** #8341)
**(Bellow, Alexandra)** *See* **Measure theory**, (**55** #8284) *and* **Measure theory**, (**55** #8285)
**Blum, Julius R.** (*with* Mizel, Victor J.) On a theorem of Weyl and the ergodic theorem. (**46** #5571)
**Choquet, Gustave** (*with* Foiaş, C.) Solution d'un problème sur les itérés d'un opérateur positif sur $C(K)$ et propriétés de moyennes associées. (English summary) (**53** #11017)
**Conze, Jean-Pierre** (*with* Dang Ngoc Nghiem) Ergodic theorems for noncommutative dynamical systems. (**58** #17870)
**Dang Ngoc Nghiem** *See* **Conze, Jean-Pierre**, (**58** #17870)
**Dinges, Hermann** Ein Überblick über einige neuere Ansätze zu den Gesetzen der grossen Zahlen. (**52** #10994)
Ein Überblick über einige neuere Ansätze zu den Gesetzen der grossen Zahlen. (**53** #764)
**Duncan, Richard D.** Some pointwise convergence results in $L^p(\mu)$, $1<p<\infty$. (**58** #17038)
**Eberlein, W. F.** Mean ergodic flows. (**54** #8352)
**Engmann, Hans** Notwendige und hinreichende Ungleichungen für die Existenz spezieller $L^1$-Kontraktionen. (English summary) (**53** #765)
**Fava, Norberto Angel** Weak type inequalities for product operators. (**46** #7478)
**Foiaş, C.** *See* **Choquet, Gustave**, (**53** #11017)
**Goldstein, Jerome A.** (*with* Radin, Charles; Showalter, Ralph E.) Convergence rates of ergodic limits for semigroups and cosine functions. (**58** #7204)
**Gologan, Radu Nicolae** A remark on Chacon's ergodic theorem. (**54** #7747)
A remark on the ergodic theorem with mixed conditions. (**57** #9938)
**Guz, Wawrzyniec** Corrigendum to: "Ergodicity in classical and quantum statistical mechanics" (Rep. Mathematical Phys. **9** (1976), no. 1, 1–8). (**57** #18673)
**Haïnis, Ioannis Th.** A multiplicative ergodic theorem in commutative Banach algebra. (**58** #30263)
**Herkenrath, U.** Markov processes under continuity assumptions. (**57** #7770)
**Hopenwasser, Alan** Ergodic automorphisms and linear spaces of operators. (**52** #3474)
On the norm of the sum of certain operators. (**51** #13190)
**Horinouchi, Sôichi** *See* **Sakai, Kôkichi**, (**58** #31410)
**Hsiao, Shêng Yen** *See* **Lin, Charles S. C.**, (**58** #12508)
**Itoh, Shigeru** (*with* Körezlioğlu, Hauri; Takahashi, Wataru) Ergodic theorems and averaging operators on measurable functions. (**51** #13191)
**Kipnis, Claude** Majoration des semi-groupes de contractions de $L^1$ et applications. (English summary) (**51** #8373)
**(Kölzow, Dietrich)** *See* **Measure theory**, (**55** #8284) *and* **Measure theory**, (**55** #8285)
**Körezlioğlu, Hauri** *See* **Itoh, Shigeru; et al.**, (**51** #13191)
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**Angelescu, N.** (*with* Nenciu, G.; Bundaru, M.) On the perturbation of Gibbs semigroups. (**55** #6236)

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**Birman, M. Š.** (*with* Koplienko, L. S.; Solomjak, M. Z.) Estimates of the spectrum of a difference of fractional powers of selfadjoint operators. (Russian) (**52** #6458)

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**Buhvalov, A. V.** Factorization of compact operators, and an example of a reflexive Banach lattice without the approximation property. (Russian) (**54** #3369a (E **54** #3369b) )

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Corrigendum: "Bounded perturbations of $F_+$ and $F_-$-operators in locally conve spaces" (Bull. Soc. Roy. Sci. Liège **44** (1975), no. 1-2, 28–35). (57 #17331c)

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**Browder, Félix E.** Remarks on nonlinear interpolation in Banach spaces. (**46** #2418)
**Cain, Bryan E.** (*with* Saunders, B. David; Schneider, Hans) On the geometry of dual pairs. (**58** #17800)
**Calvert, Bruce D.** Harnack's theorem on convergence for nonlinear operators. (Italian summary) (**48** #6656)
The range of a contractive projection. (**57** #10413)
A question of J. C. Butcher on integration methods. (**58** #30228)
**Cecconi, J. P.** Introduction to convex analysis. (**58** #23595)
**Cellina, Arrigo** On mappings defined by differential equations. (**48** #6593)
**Chambers, J. T.** (*with* Ôharu, Shinnosuke) Semi-groups of local Lipschitzians in a Banach space. (**46** #6095)
**Chernoff, Paul R.** ★Product formulas, nonlinear semigroups, and addition of unbounded operators. (**54** #5899)
**Citlanadze, K. È.** The analytic representation of nonlinear functionals in Banach spaces. (Russian. Georgian and English summaries) (**54** #13967)
**Cousland, Malcolm** An *A*-proper map with prescribed topological degree. (**53** #14479)
**Crandall, Michael G.** The semigroup approach to first order quasilinear equations in several space variables. (**47** #5473)
A generalized domain for semigroup generators. (**47** #2426)
**Cruceanu, Ştefan** Sur une méthode de régularisation pour le problème de la minimisation des fonctionnelles convexes. (**47** #2472)
**Cwikel, Michael** A counterexample in nonlinear interpolation. (**55** #6205)
**Daneš, Josef** On Banach-Steinhaus theorem. (Italian summary) (**56** #9218)
(*with* Durdil, Jiří) A note on geometric characterization of Fréchet differentiability. (**54** #3743)
**Da Prato, Giuseppe** Équations d'évolution dans des algèbres d'opérateurs et application a des équations quasi-linéaires. (**58** #30482)
**Degani Cattelani, Franca** (*with* Fiocchi, Cristina) Problema degli autovalori in spazi con prodotto pseudo-interno. (**51** #13657)
**Dobrakov, Ivan** On subadditive operators on $C_0(T)$. (Russian summary) (**47** #7402)
**Donati, Flavio** (*with* Matzeu, Michele) Solutions fortes et estimations duales pour des inéquations variationnelles paraboliques non linéaires. (English summary) (**56** #866)
**Durdil, Jiří** On the geometric characterization of differentiability. I, II. (**54** #13968)
*See also* **Daneš, Josef**, (**54** #3743)
**Duvaut, Georges** ★Méthodes variationelles et applications. (**57** #18405)
**Facchinetti, Gisella** *See* **Barbieri, Francesco**, (**51** #13658)
**Favini, Angelo** Alcuni risultati sulla interpolazione non-lineare. (English summary) (**46** #9767)
**Fiocchi, Cristina** *See* **Degani Cattelani, Franca**, (**51** #13657)
**Fitzgibbon, William** Product integration in reflexive Banach spaces. (**56** #3633)
**Fougères, Alain** (*with* Vaudène, Renée) Comparaison de fonctionnelles intégrales; application aux opérateurs intégrands entre espaces de Orlicz. (English summary) (**55** #11019)

**Fowler, Peter A.** Infimum and domination principles in vector lattices. (**53** #14075)

**Friedman, Avner** Nonlinear eigenvalue problems. (**52** #3995)

**Gabdulhaev, B. G.** Direct methods of solution of certain operator equations. I, II. (Russian) (**45** #4577)

**Gamlen, John L. B.** (*with* Muldowney, James S.) An intermediate value property. (**51** #10796)

**Gorohov, E. V.** *See* **Obuhovskiĭ, V. V.**, (**58** #13146)

**Grebennikov, A. I.** Optimal approximation of nonlinear operators. (Russian) (**58** #19110)

**Hadeler, K. P.** On a class of nonlinear eigenvalue problems. (**53** #4528)

**Haraux, Alain** How to differentiate the projection on a convex set in Hilbert space. Some applications to variational inequalities. (**58** #1207)

**Ho Duc Viet** Strong continuity of gradient mappings. (**58** #7688)

**Isac, George** Sur les cônes convexes engendrés par des ensembles bornés et cônes complètement réguliers. (**54** #8223)

**Istrăţescu, Ana I.** (*with* Istrăţescu, Vasile I.) A generalization of collectively compact sets of operators. I. (**46** #6092)

**Istrăţescu, Vasile I.** *See* **Istrăţescu, Ana I.**, (**46** #6092)

**Karlovitz, Les Andrew** The construction and application of contractive retractions in 2-dimensional normed linear spaces. (**46** #7869)

**Klingelhöfer, Klaus** Nichtlineare Störungen linearer Rand-Eigenwertprobleme mit mehrfachem Eigenwert. (**46** #6098)

**Kobayashi, Yoshikazu** Difference approximation of evolution equations and generation of nonlinear semigroups. (**58** #22881)

**Kolesov, Ju. S.** Stability of nonlinear systems with distributed parameters in the critical case of a pair of pure imaginary roots. (Russian) (**58** #6581)

**Kolomý, Josef** Uniform boundedness and strong continuity of derivatives of convex functionals. (Russian summary) (**47** #3990)

**Konishi, Yoshio** A remark on semi-groups of local Lipschitzians in Banach space. (**47** #7516)

A remark on fluid flows through porous media. (**48** #11787)

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**Krasnosel'skiĭ, M. A.** (*with* Zabreĭko, P. P.; Pustyl'nik, E. I.; Sobolevs'kiĭ, P. O.) ★Integral operators in spaces of summable functions. (**52** #6505)

(*with* Pokrovskiĭ, A. V.) The discontinuous superposition operator. (Russian) (**56** #568)

(*with* Bobylev, N. A.; Muhamadiev, È. M.) A scheme for the study of degenerate extremals of functionals in the classical calculus of variations. (Russian) (**58** #12609)

**Krikorian, Nishan** Compact multilinear transformations. (**45** #4144)

Invariance of domain in Banach spaces. (**54** #13966)

**Krjanev, A. V.** (*with* Šihov, S. B.) An application of the methods of partial orderings to the solution of problems of the nonlinear statics of nuclear reactors. (Russian) (**57** #11391)

**Kuo, Hui Hsiung** The Morse-Palais lemma on Banach spaces. (**48** #12593)

**Lin, Chao Chih** Nonlinear evolution equations in locally convex spaces. (**56** #3427)

**Linke, Ju. È.** Sublinear operators and continuous selectors. (Russian) (**52** #6490)

Sublinear operators with values in spaces of continuous functions. (Russian) (**56** #12975)

Sublinear operators, and Lindenstrauss spaces. (Russian) (**56** #1035)

**Lloyd, John W.** Higher order derivatives in topological linear spaces. (**58** #13127)

**Looney, Carl G.** Operator minimax theorems in Banach lattices. (**56** #9400)

**Lovelady, David Lowell** Algebraic structure for a set of nonlinear integral operations. (**46** #2485)

**Makažanova, T. H.** The power of the spectrum of a superlinear mapping. (Russian) (**52** #6491)

**Marcus, Moshe** (*with* Mizel, Victor J.) Nemitsky operators on Sobolev spaces. (**50** #978)

(*with* Mizel, Victor J.) Extension theorems for nonlinear disjointly additive functionals and operators on Lebesgue spaces, with applications. (**53** #6305a (E **53** #6305b) )

(*with* Mizel, Victor J.) Erratum: "Extension theorems for nonlinear disjointly additive functionals and operators on Lebesgue spaces, with applications" (Bull. Amer. Math. Soc. **82** (1976), no. 1, 115–117). (**53** #6305b)

**Markus, A. S.** The completeness of a part of the eigen- and associated vectors for certain nonlinear spectral problems. (Russian) (**45** #2527)

**Marsden, Jerrold Eldon** On product formulas for nonlinear semigroups. (**50** #8156)

**Martelli, Mario** (*with* Vignoli, Alfonso) On differentiabiliy of multi-valued maps. (Italian summary) (**51** #6417)

**Matzeu, Michele** *See* **Donati, Flavio**, (**56** #866)

**Mirzahanjan, È. A.** Construction of infinite-dimensional homotopy groups. (Russian. Armenian and English summaries) (**57** #7657)

*See also* **Boltjanskiĭ, V. G.**, (**57** #4227)

**Mizel, Victor J.** *See* **Marcus, Moshe**, (**50** #978); **Marcus, Moshe**, (**53** #6305a (E **53** #6305b) ) *and* **Marcus, Moshe**, (**53** #6305b)

**Moreau, Jean-Jacques** Intersection de deux convexes mobiles dans un espace normé. (**48** #4735)

**Muhamadiev, È. M.** *See* **Krasnosel'skiĭ, M. A.; et al.**, (**58** #12609)

**Muldowney, James S.** *See* **Gamlen, John L. B.**, (**51** #10796)

**Negro, Angelo L.** Successive approximations method for magnetic field steady state nonlinear equations. (Italian summary) (**58** #8829)

**Neuberger, J. W.** Lie generators for strongly continuous equi-uniformly continuous one parameter semigroups on a metric space. (**45** #964)

Quasi-analyticity and semigroups. (**47** #4061)

**Nurekenov, T. K.** Conditions for the complete and weak continuity of the P. S. Uryson nonlinear integral operator. (Russian. Kazakh summary) (**45** #4227)

**Obuhovskiĭ, V. V.** (*with* Gorohov, E. V.) On the determination of the rotation of a class of compactly contractible many-valued vector fields. (Russian) (**58** #13146)

**Ôharu, Shinnosuke** *See* **Chambers, J. T.**, (**46** #6095)

**Otáhal, Antonín** Measure of noncompactness of subsets of Lebesgue spaces. (Czech and loose Russian summaries) (**57** #13469)

**Ovčinnikov, V. I.** (*with* Piljugin, E. N.) von Neumann algebras and nonlinear operators. (Russian) (**57** #13517)

**Pavel, Nicolae H.** On the boundedness of the motions of a periodic process. (Italian summary) (**50** #7720)

**Peitgen, Heinz-Otto** On continua of periodic solutions for functional differential equations. (**58** #6614)

**Piljugin, E. N.** *See* **Ovčinnikov, V. I.**, (**57** #13517)

**Pokrovskiĭ, A. V.** *See* **Krasnosel'skiĭ, M. A.**, (**56** #568)

**Polons'ka, T. V.** Analogue of transversality and Weierstrass-Erdmann conditions for functionals of vector-valued functions in a Banach space. (Ukrainian. Russian summary) (**58** #24320)

**Potapov, A. M.** A posteriori error estimation. (Russian) (**57** #11033)

**Pustyl'nik, E. I.** *See* **Krasnosel'skiĭ, M. A.; et al.**, (**52** #6505)

**Riddell, R. C.** Nonlinear eigenvalue problems and spherical fibrations of Banach spaces. (**54** #13990)

**Robert, Jacques** Équations d'évolution paraboliques fortement non linéaires. (**47** #9098a)

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**Rockafellar, R. Tyrrell** Convex algebra and duality in dynamic models of production. (**52** #1258)

**Rothe, Erich H.** Some remarks on vector fields in Hilbert space. (**52** #1772)

**Rubinov, A. M.** Sublinear operators and their applications. (Russian) (**58** #12350)

**Rzepecki, Bogdan** A functional differential equation in Banach space. I. (**58** #6592)

**Saet, Ju.-A. I.** A comparison of the solutions of differential equations and of inequalities in a Banach space with a cone. (Russian) (**56** #9026)

**Sarreither, Paul** Transformationseigenschaften endlicher Ketten und allgemeine Verzweigungsaussagen. (**50** #14302)

**Saunders, B. David** *See* **Cain, Bryan E.; et al.**, (**58** #17800)

**Saut, Jean-Claude** Applications de l'interpolation non linéaire à des problèmes d'évolution non linéaires. (**56** #12625)

**Schneider, Hans** *See* **Cain, Bryan E.; et al.**, (**58** #17800)

**Semenihina, N. P.** *See* **Sul'din, A. V.; et al.**, (**58** #7683)

**Seppälä, Veikko** Some identities in the theory of the exponential function with applications. (**52** #1298)

**Siciak, Józef** *See* **Bochnak, Jacek**, (**47** #2364) *and* **Bochnak, Jacek**, (**47** #2365)

**Šihov, S. B.** *See* **Krjanev, A. V.**, (**57** #11391)

**Sobolevs'kiĭ, P. O.** *See* **Krasnosel'skiĭ, M. A.; et al.**, (**52** #6505)

**Spreuer, H.** *See* **Adams, E.**, (**58** #1562)

**Stampacchia, Guido** Hilbert's twenty-third problem: extensions of the calculus of variations. (**55** #1178)

**Stathakópoulos, Konstantin** Über nichtlineare kompakte Störungen von kompakten linearen Operatoren. (**51** #3954)

**Stroescu, Elena** Perturbation of non-linear partial differential variational inequalities. I. (**56** #3450)

**Sul'din, A. V.** (*with* Zabotin, V. I.; Semenihina, N. P.) Certain operators in Hilbert space. (Russian) (**58** #7683)

**Suvorov, S. G.** Characterization of the type of the Morse index of degenerate critical points. (Ukrainian. English and Russian summaries) (**47** #5900)

Critical points of functionals with discontinuous gradients. (Ukrainian. English and Russian summaries) (**49** #4031)

**Tartar, Luc** Interpolation non linéaire. (**54** #11076)

**Thompson, Mark** The resolvent set for a non-linear Klein-Gordon equation. (Italian summary) (**58** #12029)

**Vaĭnikko, G.** ★Funktionalanalysis der Diskretisierungsmethoden. (**57** #7997)

**Vaudène, Renée** *See* **Fougères, Alain**, (**55** #11019)

**Vignoli, Alfonso** *See* **Martelli, Mario**, (**51** #6417)

**Vo Van Tho** *See* **Alò, Richard A.; et al.**, (**58** #22456)

**Wolf, Rudolf** Asymptotische Entwicklungen für Eigenwerte und Eigenvektoren bei der Approximation parameternichtlinearer Eigenwertaufgaben. (English summary) (**58** #3428)

**Yamamuro, Sadayuki** On the semigroup of differentiable mappings on Montel space. (**48** #12051)

**Zabotin, V. I.** *See* **Sul'din, A. V.; et al.**, (**58** #7683)

**Zabreĭko, P. P.** Nonlinear integral operators. (Russian) (**52** #15120)

*See also* **Krasnosel'skiĭ, M. A.; et al.**, (**52** #6505)

**Zeidler, Eberhard** Zur Bifurkationstheorie von M. A. Krasnoselski. (**45** #5801)

**Nonlinear integral operators** ★Нелинейные интегральные операторы. (Russian) [Nonlinear integral operators] (**52** #15121)

## 49–XX CALCULUS OF VARIATIONS AND OPTIMAL CONTROL [See also 34H05, 93Exx.]

**(Alekseev, V. M.)** *See* **Young, L. C.**, **50** #5571

**Balakrishnan, A. V.** ★Введение в теорию оптимизации в Гильбертовом пространстве. (Russian) [Introduction to optimization theory in Hilbert space] **50** #3045

**Boltjanskiĭ, V. G.** ★Математические методы оптимального управления. (Russian) [Mathematical methods of optimal control] **50** #5568

★Mathematical methods of optimal control. **50** #5567

★Matematyczne metody sterowania optymalnego. (Polish) [Mathematical methods of optimal control] **50** #5569

★Mathematische Methoden der optimalen Steuerung. **50** #5570

**(Èlušvili, M. G.)** *See* **Young, L. C.**, **50** #5571

**(Gamkrelidze, R. V.)** *See* **Balakrishnan, A. V.**, **50** #3045 *and* **Lions, Jacques-Louis**, **50** #3046

**(Komor, Zygmunt)** *See* **Boltjanskiĭ, V. G.**, **50** #5569

**Lions, Jacques-Louis** ★Оптимальное управление системами описываемыми уравнениями с частными производными. (Russian) [Optimal control of systems that are governed by partial differential equations] **50** #3046

**(Nappel'baum, È. L.)** *See* **Balakrishnan, A. V.**, **50** #3045

**(Pstrokoński, Maciej)** *See* **Boltjanskiĭ, V. G.**, **50** #5569

**(Rozov, N. H.)** *See* **Lions, Jacques-Louis, 50** #3046
**(Tarnove, Ivin)** *See* **Boltjanskiĭ, V. G., 50** #5567
**(Trirogoff, K. N.)** *See* **Boltjanskiĭ, V. G., 50** #5567
**Young, L. C.** ★Лекции по вариационному исчислению и теории оптимального управления. (Russian) [Lectures on the calculus of variations and optimal control theory] **50** #5571

Secondary classifications:

**Kung, C. F.** Singular perturbation of an infinite interval linear state regulator problem in optimal control. (**54** #4767)
**Lee, E. B.** (*with* Markus, L.) ★Основы теории оптимального управления. (Russian) [Foundations of optimal control theory] (**50** #6584)
**(Leont′eva, L. L.)** *See* **Lee, E. B.; et al.,** (**50** #6584)
**Markus, L.** *See* **Lee, E. B.,** (**50** #6584)
**(Roĭtenberg, Ja. N.)** *See* **Lee, E. B.; et al.,** (**50** #6584)
**Schmitendorf, William E.** Corrigendum: "Necessary conditions and sufficient conditions for static minmax problems" (J. Math. Anal. Appl. **57** (1977), no. 3, 683–693). (**57** #8009)

## 49–01 Elementary exposition (collegiate level)

**Andersen, Kirsti** (*with* Pedersen, Kurt Møller) The early history of the calculus of variations. (Danish. English summary) **48** #982
**(Basch, Michael)** *See* **Rektorys, K., 58** #7268b
**Bensoussan, A.** ★Teoría moderna de control óptimo. (Spanish) [Modern theory of optimal control] [Reports of the "Beppo Levi" Institute of Mathematics, No. 7] **57** #1222
**Berkovitz, Leonard D.** ★Optimal control theory. **51** #8914
Optimal control theory. **54** #8379
**Boltjanskiĭ, V. G.** The method of "tents" and the teaching of optimal control theory. (Bulgarian) **58** #23844
*See also* **Pontrjagin, L. S.; et al., 50** #10943
**Burley, D. M.** ★Studies in optimization. **51** #13805
**Clegg, John C.** ★Variationsrechnung. **48** #981
**Èl′sgol′c, L. È.** ★Variationsrechnung. **49** #7866
**(Embarek, Djilali)** *See* **Pontrjagin, L. S.; et al., 50** #10943
**Epheser, Helmut** ★Vorlesung über Variationsrechnung. **51** #11223
**(Ermol′ev, Ju. M.)** *See* **Ljusternik, L. A., 54** #13660
**(Fernández de Luco, Marina)** *See* **Bensoussan, A., 57** #1222
**Fränkel, Heiner** ★Diskrete optimale Steuerungsprobleme und konvexe Optimierung. **50** #10944
**Gamkrelidze, R. V.** *See* **Pontrjagin, L. S.; et al., 50** #10943
**Hasdorff, Lawrence** ★Gradient optimization and nonlinear control. **58** #7266
**Hestenes, Magnus R.** ★Optimization theory. **57** #1223
**(Jankovskiĭ, G.)** *See* **Krasnov, M. L.; et al., 52** #4059
**Kiselev, A. I.** *See* **Krasnov, M. L.; et al., 50** #14408; **Krasnov, M. L.; et al., 52** #4059 *and* **Krasnov, M. L.; et al., 55** #1177
**Klamkin, Murray S.** On extreme length flight paths. **57** #7291
On Chaplygin's problem. **55** #3901
**Klingbeil, Eberhard** ★Variationsrechnung. **56** #9346
**Koo, Delia** ★Elements of optimization. **58** #23845
**Krasnov, M. L.** (*with* Makarenko, G. I.; Kiselev, A. I.) ★Вариационное исчисление. (Russian) [Calculus of variations] **50** #14408
(*with* Makarenko, G. I.; Kiselev, A. I.) ★Problems and exercises in the calculus of variations. **52** #4059
(*with* Makarenko, G. I.; Kiselev, A. I.) ★Cálculo variacional (ejemplos y problemas). (Spanish) [Calculus of variations (examples and problems)] **55** #1177
**Križanič, France** Dynamic programming. (Slovenian. English summary) **55** #13310
**Ławrynowicz, Julian** ★Rachunek wariacyjny ze wstępem do programowania matematycznego. (Polish) [The calculus of variations with an introduction to mathematical programming] **58** #12572
**Ljusternik, L. A.** ★The shortest lines. Variational problems. **54** #13660
**Makarenko, G. I.** *See* **Krasnov, M. L.; et al., 50** #14408; **Krasnov, M. L.; et al., 52** #4059 *and* **Krasnov, M. L.; et al., 55** #1177
**(Menaldi, José-Luis)** *See* **Bensoussan, A., 57** #1222
**Miščenko, E. F.** *See* **Pontrjagin, L. S.; et al., 50** #10943
**Mosco, Umberto** Introduction to variational and quasi-variational inequalities. **58** #23846
**Moskalenko, A. I.** ★Эффективные оценки функционалов. (Russian) [Effective estimates of functionals] **58** #23847
**(Pallaschke, Diethard)** *See* **Rolewicz, Stefan, 56** #1158
**Pawlak, Adam** Variational principles, and the integration of physical theories. (Polish. Russian and English summaries) **58** #7267
**Pedersen, Kurt Møller** *See* **Andersen, Kirsti, 48** #982
**Pontrjagin, L. S.** (*with* Boltjanskiĭ, V. G.; Gamkrelidze, R. V.; Miščenko, E. F.) ★Théorie mathématique des processus optimaux. **50** #10943
**Propoĭ, ˊA. I.** ★Элементы теории оптимальных дискретных процессов. (Russian) [Elements of the theory of optimal discrete processes] **49** #11340
**Rektorys, K.** ★Variační metody v inženýrských problémech a v problémech matematické fyziky. (Czech) [Variational methods in engineering problems and in problems of mathematical physics] **58** #7268a
★Variational methods in mathematics, science and engineering. **58** #7268b
**Rolewicz, Stefan** ★Analiza funkcjonalna i teoria sterowania. (Polish) [Functional analysis and control theory] **57** #7292
★Funktionalanalysis und Steuerungstheorie. **56** #1158
★Analiza funkcjonalna i teoria sterowania. (Polish) [Functional analysis and control theory] **58** #23848
**Rubio, J. E.** ★The theory of linear systems. **50** #1074
**Sagan, Hans** Calculus of variations and optimal control theory. (See Zbl **306** #49008)
**Smith, Donald R.** ★Variational methods in optimization. **49** #11341
**Tocancipá, Alfonso** Control theory. (Spanish) **55** #11121
**Vârsan, Constantin** Non-linear functional analysis and applications to optimal control theory. **58** #23849
**(Vega, Carlos)** *See* **Krasnov, M. L.; et al., 55** #1177
**Warga, Jack** ★Optimal control of differential and functional equations. **51** #8915

Secondary classifications:

**Alam, Mansoor** (*with* Sarma, V. V. S.) An application of optimal control theory to repairman problem with machine interference. (**58** #4270)
**Barbu, Viorel** (*with* Precupanu, Teodor) ★Convexitate şi optimizare în spaţii Banach. (Romanian) [Convexity and optimization in Banach spaces] (**57** #1057)
**Barnett, Stephen** ★Introduction to mathematical control theory. (**55** #14276)
**Bublik, B. M.** (*with* Kiričenko, M. F.) ★Основы теории управления. (Russian) [Foundations of control theory] (**55** #14277)
**Burghes, David N.** (*with* Downs, Angela M.) ★Modern introduction to classical mechanics & control. (**53** #2084)
**(Buttin, Claudette)** *See* **Cartan, H.,** (**49** #8774) *and* **Cartan, H.,** (**49** #8775)
**Cartan, H.** ★Дифференциальное исчисление. Дифференциальные формы. (Russian) [Differential calculus. Differential forms] (**49** #8775)
★Differentialformen. (**49** #8774)
**Curtain, Ruth F.** Foundations of functional analysis theory. (**58** #23649)
**Downs, Angela M.** *See* **Burghes, David N.,** (**53** #2084)
**(Fuks, B. A.)** *See* **Cartan, H.,** (**49** #8775)
**Gjunter, N. M.** (*with* Kuz′min, R. O.) ★Aufgabensammlung zur höheren Mathematik. Band II. (**58** #26628)
**Gol′denblat, I. I.** *See* **Petrov, B. N.; et al.,** (**58** #15322)
**Grauert, Hans** (*with* Lieb, Ingo) ★Differential- und Integralrechnung. III. (**57** #6312)
**(Kaljakin, B. K.)** *See* **Cartan, H.,** (**49** #8775)
**Kappel, Franz** *See* **Knobloch, H. W.,** (**58** #28735)
**Kartašev, A. P.** (*with* Roždestvenskiĭ, B. L.) ★Обыкновенные дифференциальные уравнения и основы вариационного исчисления. (Russian) [Ordinary differential equations and the foundations of the calculus of variations] (**53** #915)
**Kiričenko, M. F.** *See* **Bublik, B. M.,** (**55** #14277)
**Knobloch, H. W.** (*with* Kappel, Franz) ★Gewöhnliche Differentialgleichungen. (**58** #28735)
**Kočubievskiĭ, I. D.** *See* **Petrov, B. N.; et al.,** (**58** #15322)
**Krineckiĭ, O. E.** *See* **Petrov, B. N.; et al.,** (**58** #15322)
**Križanič, France** ★Navadne diferencialne enačbe in variacijski račun. (Slovenian) [Ordinary differential equations and the calculus of variations] (**50** #7620)
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**Petrov, B. N.** (*with* Ulanov, G. M.; Gol′denblat, I. I.; Kočubievskiĭ, I. D.; Krineckiĭ, O. E.; Ul′janov, S. V.) Informational aspects of the qualitative theory of dynamical systems. (Russian) (**58** #15322)
**Precupanu, Teodor** *See* **Barbu, Viorel,** (**57** #1057)
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**Schwarz, Helmut** ★Optimale Regelung linearer Systeme. (**56** #14845)
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**(Walter, Rolf)** *See* **Cartan, H.,** (**49** #8774)
**Weinstock, Robert** ★Calculus of variations. (**56** #1856)

## 49–02 Advanced exposition (research surveys, etc.)

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**Berkovitz, Leonard D.** Existence theory for optimal control problems. **58** #23850
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**Delmas, Jacques Henri** *See* **Boudarel, R.; et al., 50** #14409; **Boudarel, R.; et al., 50** #14410; **Boudarel, R.; et al., 50** #14411 *and* **Boudarel, R.; et al., 50** #14412
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**Kirillova, F. M.** *See* **Gabasov, R. F., 56** #1160 *and* **Gabasov, R. F., 56** #16470
**Krotov, V. F.** (*with* Gurman, V. I.) ★Методы и задачи оптимального управления. (Russian) [Methods and problems of optimal control] **54** #5931
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**Miščenko, E. F.** *See* **Pontrjagin, L. S.; et al., 57** #17433
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**Pontrjagin, L. S.** (*with* Boltjanskiĭ, V. G.; Gamkrelidze, R. V.; Miščenko, E. F.) ★Théorie mathématique des processus optimaux. **57** #17433
**Puhov, G. È.** (*with* Zlatkin, A. A.) ★Гибридные методы решения задач оптимального управления. (Russian) [Hybrid methods for the solution of optimal control problems] **57** #1224
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**Stampacchia, Guido** Hilbert's twenty-third problem: extensions of the calculus of variations. **55** #1178
**Stará, Jana** *See* **Souček, Jiří; et al., 57** #1225
**Temam, Roger** *See* **Ekeland, Ivar, 57** #3931a *and* **Ekeland, Ivar, 57** #3931b
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**Seminar:**
  **Kiev** *See* **Theory of optimal decisions, 45** #1652; **Theory of optimal decisions, 45** #1653 *and* **Theory of optimal decisions, 45** #1654
**Theory of optimal decisions** ★Теория оптимальных решений (Труды семинара, Киев, 1968 г.). Вып. 4. (Russian) [Theory of optimal decisions (Proceedings of a Seminar, Kiev, 1968). No. 4 ] **45** #1652
  ★Теория оптимальных решений (Труды семинара, Киев, 1968 г.). Вып. 5. (Russian) [Theory of optimal decisions (Proceedings of a Seminar, Kiev, 1968). No. 5] **45** #1653
  ★Теория оптимальных решений (Труды семинара, Киев, 1969 г.). Вып. 2. (Russian) [Theory of optimal decisions (Proceedings of a Seminar, Kiev, 1969). No. 2] **45** #1654

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**Balakrishnan, A. V.** ★Applied functional analysis. (**57** #10445)
**(Berg, Christa)** *See* **Smirnov, V. I.,** (**50** #5147)
**(Berg, Lothar)** *See* **Smirnov, V. I.,** (**50** #5147)
**(Evlanov, L. G.)** *See* **Foundations of automatic control,** (**53** #5066)
**(Gladkov, D. I.)** *See* **Foundations of automatic control,** (**53** #5066)
**Glowinski, Roland** (*with* Lions, Jacques-Louis; Trémolières, Raymond) ★Analyse numérique des inéquations variationnelles. Tome 1. (**58** #31697a)
  (*with* Lions, Jacques-Louis; Trémolières, Raymond) ★Analyse numérique des inéquations variationnelles. Tome 2. (**58** #31697b)
**de Guzmán, Miguel** ★Ecuaciones diferenciales ordinarias. (Spanish) [Ordinary differential equations] (**57** #12948)
**(Kazakov, I. E.)** *See* **Foundations of automatic control,** (**53** #5066)
**Kinderlehrer, David** Variational inequalities and free boundary problems. (**57** #6759)
**Lions, Jacques-Louis** *See* **Glowinski, Roland; et al.,** (**58** #31697a) *and* **Glowinski, Roland; et al.,** (**58** #31697b)
**(Mal′čikov, S. V.)** *See* **Foundations of automatic control,** (**53** #5066)
**(Mišakov, A. F.)** *See* **Foundations of automatic control,** (**53** #5066)
**Mohler, Ronald R.** ★Bilinear control processes. With applications to engineering, ecology, and medicine. (**48** #10576)
**(Pallaschke, Diethard)** *See* **Rolewicz, Stefan,** (**56** #1158)
**Polak, Elijah** An historical survey of computational methods in optimal control. (**53** #1956)
**(Pugačev, V. S.)** *See* **Foundations of automatic control,** (**53** #5066)
**Rolewicz, Stefan** ★Analiza funkcjonalna i teoria sterowania. (Polish) [Functional analysis and control theory] (**57** #7292)
  ★Funktionalanalysis und Steuerungstheorie. (**56** #1158)
**Saeks, Richard** The factorization problem–a survey. (**53** #14161)
**(Sedov, V. D.)** *See* **Foundations of automatic control,** (**53** #5066)
**Smirnov, V. I.** ★Lehrgang der höheren Mathematik. Teil IV. (**50** #5147)
  ★Курс высшей математики. Том IV. Часть 1. (Russian) [A course in higher mathematics. Vol. IV. Part 1} (**50** #14095)
**(Sokolov, V. I.)** *See* **Foundations of automatic control,** (**53** #5066)
**Trémolières, Raymond** *See* **Glowinski, Roland; et al.,** (**58** #31697a) *and* **Glowinski, Roland; et al.,** (**58** #31697b)
**Automatic control** *See* **Foundations of automatic control,** (**53** #5066)
**Bibliography:**
  **Computational methods in optimal control** *See* **Polak, Elijah,** (**53** #1956)
  **Factorization of operators** *See* **Saeks, Richard,** (**53** #14161)
**Foundations of automatic control** ★Основы автоматического управления. (Russian) [Foundations of automatic control] (**53** #5066)

## 49–03 Historical

**Olech, Czesław** The achievements of Tadeusz Ważewski in the mathematical theory of optimal control. (Polish) **55** #6257
**(Ważewski, Tadeusz)** *See* **Olech, Czesław, 55** #6257

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**(Bernoulli, Jacques)** *See* **Variationsrechnung,** (**58** #27167)
**(Bernoulli, Johann)** *See* **Variationsrechnung,** (**58** #27167)
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**(Bogoljubov, O. M.)** *See* **History of national mathematics in four volumes,** (**58** #26682)
**(Carathéodory, Constantin)** *See* **Boerner, Hermann,** (**57** #15905)
**Cyganova, N. Ja.** Generalized forms of the variational principles of mechanics in works dating from the end of the nineteenth century and the beginning of the twentieth. (Polish) (**58** #26991)
**(Euler, Leonhard)** *See* **Variationsrechnung,** (**58** #27167)
**(Hestenes, Magnus R.)** *See* **Miele, Angelo,** (**49** #7100)
**(Jacobi, Carl Gustav Jacob)** *See* **Variationsrechnung,** (**58** #27167)
**(Juškevič, A. P.)** *See* **History of national mathematics in four volumes,** (**58** #26682)
**(Lagrange, Joseph Louis)** *See* **Variationsrechnung,** (**58** #27167)
**(Legendre, Adrien Marie)** *See* **Variationsrechnung,** (**58** #27167)
**Miele, Angelo** An appreciation of Professor M. R. Hestenes. (**49** #7100)
**Noether, Emmy** Invariant variation problems. (**53** #10538)
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**Pawlak, Adam** Variational principles, and the integration of physical theories. (Polish. Russian and English summaries) (**58** #7267)
**Serrin, J.** The solvability of boundary value problems. (**55** #814)
**(Stäckel, Paul)** *See* **Variationsrechnung,** (**58** #27167)
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**(Štokalo, Ĭ. Z.)** *See* **History of national mathematics in four volumes,** (**58** #26682)
**Tavel, M. A.** Milestones in mathematical physics: Noether's theorem. (**53** #10537)
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  **Hestenes, Magnus R.** *See* **Miele, Angelo,** (**49** #7100)
**Biography:**
  **Hestenes, Magnus R.** *See* **Miele, Angelo,** (**49** #7100)
**Calculus of variations** *See* **Variationsrechnung,** (**58** #27167)
**History of mathematics** *See* **History of national mathematics in four volumes,** (**58** #26682)
**History of national mathematics in four volumes** ★История отечественной математики в четырех томах. Том 4. Книги 1 и 2: 1917–1967. (Russian) [History of national mathematics in four volumes. Vol. 4. Books 1 and 2: 1917–1967] (**58** #26682)
**Variationsrechnung** ★Variationsrechnung. (**58** #27167)

## 49–04 Explicit machine computation and programs (not the theory of computation or programming)

**Colli Franzone, Piero** (*with* Gazzaniga, Giovanna) Approssimazione numerica di alcuni problemi di controllo governati da problemi misti ellittici. **51** #13807

**Gazzaniga, Giovanna** *See* **Colli Franzone, Piero, 51** #13807

**Leskov, A. G.** *See* **Medvedev, V. S.; et al., 52** #6521

**Maksimov, A. I.** *See* **Medvedev, V. S.; et al., 52** #6521

**Medvedev, V. S.** (*with* Maksimov, A. I.; Leskov, A. G.) Application of the analytic theory of regulators to synthesis with given dynamic properties. **52** #6521

## 49–06 Collections of papers; proceedings of conferences

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**(Aleksandrov, I. A.)** *See* **Theory of optimal processes, 56** #16471

**(Aubin, Jean-Pierre)** *See* **Analyse convexe et ses applications, 50** #8190

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**Control theory and the calculus of variations** ★Control theory and the calculus of variations. **52** #15159

**Control theory of systems governed by partial differential equations** ★Control theory of systems governed by partial differential equations. **55** #1179

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**Differential equations** *See* **Optimal control and differential equations, 57** #10536

**Differential games and control problems** ★Дифференциальные игры и задачи управления. (Russian) [Differential games and control problems] **56** #9347

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**Journées:**

  **Contrôle** ★Journées de Contrôle. I. **52** #6522

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**Mathematical economics methods for industrial control and efficiency** ★Економіко-математичні методи управління і ефективність виробництва. (Ukrainian) [Mathematical economics methods for industrial control and efficiency] **57** #13612

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**Norman, Okla.** *See* **Optimal control and differential equations, 57** #10536

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**Optimal control** *See* **Questions of the mathematical theory of optimal control,** (Not reviewed); **Existence theory in the calculus of variations and optimal control, 50** #8191 *and* **Optimization and optimal control, 52** #15162

**Optimal control and differential equations** ★Optimal control and differential equations. **57** #10536

**Optimal control theory and its applications** ★Optimal control theory and its applications. Part I. **53** #1358

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**Optimization and optimal control** ★Optimization and optimal control. **52** #15162

**Questions of the mathematical theory of optimal control** ★Некоторые вопросы математической теории оптимального управления. (Russian) [Some questions of the mathematical theory of optimal control] (Not reviewed)

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  **Canadian Mathematical Congress** *See* **Optimal control theory and its applications, 53** #1358

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  **Calculus of Variations and Control Theory** *See* **Calculus of variations and control theory, 53** #11447

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  **Sonderforschungsbereich** *See* **Numerische Behandlung von Variations- und Steuerungsproblemen, 51** #3993

**Theoretical and numerical methods of mathematical physics** ★Métodos teóricos y numéricos de la fisica matemática. (Spanish) [Theoretical and numerical methods of mathematical physics] **52** #15160

**Theory of optimal decisions** ★Теория оптимальных решений. (Russian) [Theory of optimal decisions] **57** #17434

**Theory of optimal processes** ★Теория оптимальных процессов. (Russian) [Theory of optimal processes] **56** #16471

  ★Теория оптимальных процессов. (Russian) [Theory of optimal processes] **56** #3699

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**Variational problems** *See* **Numerische Behandlung von Variations- und Steuerungsproblemen, 51** #3993

Secondary classifications:

**(Antosiewicz, H. A.)** *See* **Conference: Differential Equations, (51** #966**)**

**(Balakrishnan, A. V.)** *See* **Techniques of optimization, (48** #5757**)**

**(Brikman, M. S.)** *See* **Methods and models of control, (48** #10741**)**

**(Collatz, Lothar)** *See* **Numerische Methoden bei Optimierungsaufgaben, (49** #4250**)**

**(Conti, R.)** *See* **Conference: Optimization Techniques, (48** #5758**)** *and* **Conference: Optimization Techniques, (48** #5759**)**

**(Cypkin, Ja. Z.)** *See* **Proceedings: All-Union Conference on Automatic Control—Engineering Cybernetics, (48** #8021**)**

**(Gossez, Jean-Pierre)** *See* **Nonlinear operators and the calculus of variations, (58** #12431**)**

**(Kluge, Reinhard)** *See* **Theory of nonlinear operators, (57** #1154**)**

**(Kristinkov, D. S.)** *See* **Methods and models of control, (48** #10741**)**

**(Lami Dozo, Enrique José)** *See* **Nonlinear operators and the calculus of variations, (58** #12431**)**

**(Liu, Pan Tai)** *See* **Differential games and control theory, (50** #9361**)** *and* **Differential games and control theory, (58** #25851**)**

**(Mamytov, Dž.)** *See* **Optimization of processes in systems with distributed parameters, (56** #2714**)**

**(Mawhin, Jean L.)** *See* **Nonlinear operators and the calculus of variations, (58** #12431**)**

**(Mossakovskiĭ, V. Ī.)** *See* **Mathematical methods for the computer solution of optimal control problems, (58** #30674**)**

**(Müller, Wolfdietrich)** *See* **Theory of nonlinear operators, (57** #1154**)**

**(Neustadt, Lucien W.)** *See* **Collection: Neustadt, Lucien W., (49** #2215**)**

**(Privarnikov, A. K.)** *See* **Mathematical methods for the computer solution of optimal control problems, (58** #30674**)**

**(Roxin, Emilio O.)** *See* **Differential games and control theory, (50** #9361**)** *and* **Differential games and control theory, (58** #25851**)**

**(Ruberti, Antonio)** *See* **Conference: Optimization Techniques, (48** #5758**)** *and* **Conference: Optimization Techniques, (48** #5759**)**

**(Sarkis'janc, S. M.)** *See* **Mathematical methods for the computer solution of optimal control problems**, (**58** #30674)
**(Spencer, Donald C.)** *See* **Partial differential equations**, (**48** #6620)
**(Sternberg, Robert L.)** *See* **Differential games and control theory**, (**50** #9361) *and* **Differential games and control theory**, (**58** #25851)
**(Stoer, Josef)** *See* **Optimization techniques**, (**57** #9382a) *and* **Optimization techniques**, (**57** #9382b)
**(Trapeznikov, V. A.)** *See* **Proceedings: All-Union Conference on Automatic Control—Engineering Cybernetics**, (**48** #8021)
**(Waelbroeck, Lucien)** *See* **Nonlinear operators and the calculus of variations**, (**58** #12431)
**(Wetterling, Wolfgang)** *See* **Numerische Methoden bei Optimierungsaufgaben**, (**49** #4250)
**Adaptive systems** *See* **Proceedings: All-Union Conference on Automatic Control—Engineering Cybernetics**, (**48** #8021)
**All-Union Conference:**
  **Automatic Control—Engineering Cybernetics** *See* **Proceedings: All-Union Conference on Automatic Control—Engineering Cybernetics**, (**48** #8021)
**Automatic control** *See* **Proceedings: All-Union Conference on Automatic Control—Engineering Cybernetics**, (**48** #8021)
**Berlin** *See* **Theory of nonlinear operators**, (**57** #1154)
**Calculus of variations** *See* **Nonlinear operators and the calculus of variations**, (**58** #12431)
**Collection:**
  **Neustadt, Lucien W.** ★{Collection of articles dedicated to the memory of Lucien W. Neustadt}. (**49** #2215)
**Conference:**
  **Differential Equations** ★International Conference on Differential Equations. (**51** #966)
  **Kingston, Differential Games and Control Theory** *See* **Differential games and control theory**, (**58** #25851)
  **NSF-CBMS Regional Research** *See* **Differential games and control theory**, (**50** #9361)
  **Optimization Techniques** ★Fifth Conference on Optimization Techniques (Rome, May 7–11, 1973). Part I. (**48** #5758)
    ★Fifth Conference on Optimization Techniques (Rome, May 7–11, 1973). Part II. (**48** #5759)
**Control** *See* **Methods and models of control**, (**48** #10741)
**Control theory** *See* **Collection: Neustadt, Lucien W.**, (**49** #2215); **Differential games and control theory**, (**50** #9361); **Control theory and topics in functional analysis**, (**54** #12416); **Control theory and topics in functional analysis**, (**54** #12417); **Control theory and topics in functional analysis**, (**54** #12418) *and* **Differential games and control theory**, (**58** #25851)
**Control theory and topics in functional analysis** ★Control theory and topics in functional analysis, Vol. I. (**54** #12416)
  ★Control theory and topics in functional analysis, Vol. II. (**54** #12417)
  ★Control theory and topics in functional analysis, Vol. III. (**54** #12418)
**Differential equations** *See* **Conference: Differential Equations**, (**51** #966)
**Differential games and control theory** ★Differential games and control theory. (**50** #9361)
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**Functional analysis** *See* **Control theory and topics in functional analysis**, (**54** #12416); **Control theory and topics in functional analysis**, (**54** #12417) *and* **Control theory and topics in functional analysis**, (**54** #12418)
**Geometric integration theory** *See* **Symposia Mathematica**, (**50** #9471)
**IFIP Colloquium:**
  **Optimization Techniques** *See* **Techniques of optimization**, (**48** #5757)
**IFIP Conference:**
  **Optimization Techniques** *See* **Optimization techniques**, (**57** #9382a) *and* **Optimization techniques**, (**57** #9382b)
**INDAM Convegno:**
  **Geometria Simplettica e Fisica Matematica** *See* **Symposia Mathematica**, (**50** #9471)
  **Teoria Geometrica dell'Integrazione e Varietà Minimali** *See* **Symposia Mathematica**, (**50** #9471)
**Kingston, R.I.** *See* **Differential games and control theory**, (**58** #25851)
**Mathematical methods for the computer solution of optimal control problems** ★Математические методы решения задач оптимального управления на ЭВМ. Вып. 1. (Russian) [Mathematical methods for the computer solution of optimal control problems. No. 1] (**58** #30674)
**Mathematical physics** *See* **Symposia Mathematica**, (**50** #9471)
**Methods and models of control** ★Методы и модели управления. Вып. 6. (Russian) [Control methods and models. No. 6] (**48** #10741)
**Minimal varieties** *See* **Symposia Mathematica**, (**50** #9471)
**Nonlinear operators** *See* **Theory of nonlinear operators**, (**57** #1154)
**Nonlinear operators and the calculus of variations** ★Nonlinear operators and the calculus of variations. (**58** #12431)
**Numerische Methoden bei Optimierungsaufgaben** ★Numerische Methoden bei Optimierungsaufgaben. (**49** #4250)
**Optimal control** *See* **Mathematical methods for the computer solution of optimal control problems**, (**58** #30674)
**Optimal systems** *See* **Proceedings: All-Union Conference on Automatic Control—Engineering Cybernetics**, (**48** #8021)
**Optimization** *See* **Techniques of optimization**, (**48** #5757); **Conference: Optimization Techniques**, (**48** #5758) *and* **Conference: Optimization Techniques**, (**48** #5759)
**Optimization problems** *See* **Numerische Methoden bei Optimierungsaufgaben**, (**49** #4250)
**Optimization of processes in systems with distributed parameters** ★Оптимизация процессов в системах с распределенными параметрами. (Russian) [Optimization of processes in systems with distributed parameters] (**56** #2714)
**Optimization techniques** ★Optimization techniques. Part 1. (**57** #9382a)
  ★Optimization techniques. Part 2. (**57** #9382b)
**Partial differential equations** ★Partial differential equations. (**48** #6620)
**Proceedings:**
  **All-Union Conference on Automatic Control—Engineering Cybernetics** ★Труды IV всесоюзного совещания по автоматическому управлению—технической кибернетике (Тбилиси, 1968). Том 1: Оптимальные и адаптивные системы. (Russian) [Proceedings of the Fourth All-Union Conference on Automtic Control—Engineering Cybernetics (Tbilisi, 1968). Vol. 1: Optimal and adaptive systems] (**48** #8021)
**Proceedings of Symposia in Pure Mathematics** *See* **Partial differential equations**, (**48** #6620)
**Summer Research Institute:**
  **American Mathematical Society** *See* **Partial differential equations**, (**48** #6620)
**Summer School:**
  **Nonlinear Operators and the Calculus of Variations** *See* **Nonlinear operators and the calculus of variations**, (**58** #12431)
  **Theory of Nonlinear Operators** *See* **Theory of nonlinear operators**, (**57** #1154)
**Symplectic geometry** *See* **Symposia Mathematica**, (**50** #9471)
**Symposia Mathematica** ★Symposia Mathematica. Vol. XIV. (**50** #9471)
**Systems with distributed parameters** *See* **Optimization of processes in systems with distributed parameters**, (**56** #2714)
**Tagung:**
  **Numerische Methoden bei Optimierungsaufgaben** *See* **Numerische Methoden bei Optimierungsaufgaben**, (**49** #4250)
**Techniques of optimization** ★Techniques of optimization. (**48** #5757)
**Theory of nonlinear operators** ★Theory of nonlinear operators. (**57** #1154)
**Würzburg** *See* **Optimization techniques**, (**57** #9382a) *and* **Optimization techniques**, (**57** #9382b)

## 49Axx Existence theory for optimal solutions

**Berkovitz, Leonard D.** A class of nonlinear variational problems arising from min-max filter problems. **57** #10537
**Browning, William J.** A class of variational problems. **57** #10538
**Chyung, Dong H.** (*with* Lee, E. B.) Optimal systems with time delays. **58** #18023
**Lee, E. B.** *See* **Chyung, Dong H.**, **58** #18023
**Logan, John David** ★Invariant variational principles. **58** #18024

Secondary classifications:

**Baiocchi, C.** Inéquations quasi-variationnelles dans les problèmes à frontière libre en hydraulique. (**58** #32379)
**Berkovitz, Leonard D.** Existence theory for optimal control problems. (**58** #23850)

### 49A05 Free problems in one independent variable

**Akilov, U. A.** A certain optimal control problem. (Russian. Uzbek summary) **46** #751
**Amdursky, V.** The existence of solutions to classical variational problems without assuming convexity. **45** #1013
**Angelus, Armin** Beiträge zur Theorie direkter Methoden bei irregulären Variationsproblemen. **56** #9348
**Arhipova, A. A.** A variational problem for a regular functional with degeneracy. (Russian) **58** #23854
**Aubert, Gilles** (*with* Tahraoui, Rabah) Théorèmes d'existence en calcul des variations. (English summary) **56** #1162
**Beckert, Herbert** Einige Bemerkungen zur lokalen Existenztheorie in der mehrdimensionalen Variationsrechnung. **56** #6496
**Berkovitz, Leonard D.** Some non-classical variational problems arising from optimal filter problems. **58** #12574
**Berliocchi, Henri** (*with* Lasry, Jean-Michel) Intégrandes normales et mesures paramétrées en calcul des variations. **45** #1014
**Berruti Onesti, Natalia** Sopra una classe di problemi variazionali di ordine *n*. **46** #9828
**Brunovský, Pavol** Scorza-Dragoni's theorem for unbounded set-valued functions and its applications to control problems. **46** #2517
**Brusch, Richard G.** *See* **Vincent, Thomas L.**, **45** #4241
**Cesari, Lamberto** (*with* La Palm, J. R.; Sánchez, David A.) An existence theorem for Lagrange problems with unbounded controls and a slender set of exceptional points. **46** #8001 (E **49** #5983)
**Cinquini, Silvio** Un teorema di calcolo delle variazioni. (French summary) **51** #3994
  Sopra una estensione di alcuni risultati di calcolo delle variazioni. **49** #5977 (EA 57)
  A proposito della esistenza dell'estremo assoluto in campi illimitati. **49** #5978
**Clarke, Frank H.** Admissible relaxation in variational and control problems. **53** #11448
  Extremal arcs and extended Hamiltonian systems. **56** #1163
**Frehse, Jens** Two dimensional variational problems with thin obstacles. **52** #1450
**Gasanov, K. K.** A certain control for the boundary value problem of a second order differential equation. (Russian. Azerbaijani summary) **46** #752
**Grabski, Zbigniew** (*with* Sztajnic, Jerzy) On some existential theorems of the classical variational calculus. **57** #7293
**Hannsgen, Kenneth B.** (*with* Sánchez, David A.) A note on solutions of orientor fields for periodic systems. **48** #7053
**Hildebrandt, Stéfan** Ein einfacher Beweis für die Regularität der Lösungen gewisser zweidimensionaler Variationsprobleme unter freien Randbedingungen. **45** #1015
**Ioffe, A. D.** An existence theorem for problems of the calculus of variations. (Russian) **46** #2518
**Ivanova, G. P.** Existence theorems in the calculus of variations. (Russian) **45** #1020
**Jacobson, David H.** On singular arcs and surfaces in a class of quadratic minimization problems. **45** #3110
**Jerome, Joseph W.** Smooth interpolating curves of prescribed length and minimum curvature. **52** #1451

**Kamenskiĭ, G. A.** Variational problems for functionals with deviating argument. (Russian) **57** #13613

**Koševel, V. N.** (*with* Morozov, S. F.) The existence of discontinuous solutions for a certain class of quasiregular variational problems in nonparametric form. (Russian) **46** #4306

**La Palm, J. R.** *See* **Cesari, Lamberto; et al.**, **46** #8001 (E **49** #5983)

**Lasry, Jean-Michel** *See* **Berliocchi, Henri**, **45** #1014

**McDanell, J. P.** (*with* Powers, William F.) Necessary conditions for joining optimal singular and nonsingular subarcs. **45** #3111

**Mereau, Pierre** (*with* Powers, William F.) A direct sufficient condition for free final time optimal control problems. **53** #14252

**Morozov, S. F.** *See* **Koševel, V. N.**, **46** #4306

**Mura, L. M.** (*with* Piro Grimaldi, Anna) Sul minimo assoluto del funzionale di Fubini-Tonelli nel senso intermedio di Weierstrass. **46** #753

**Napolitano, Luigi G.** The functional inverse approach for the variational formulation of boundary value problems. **58** #2517

**Nikolaev, O. I.** *See* **Vlasova, Z. A.**, **57** #10539

**Piro Grimaldi, Anna** *See* **Mura, L. M.**, **46** #753

**Powers, William F.** *See* **McDanell, J. P.**, **45** #3111 *and* **Mereau, Pierre**, **53** #14252

**Ricci, Maria Lavinia Boella** Sul minimo di un integrale. **51** #11224

**Rupp, Russell D.** The Weierstrass excess function. **47** #916

**Sánchez, David A.** *See* **Cesari, Lamberto; et al.**, **46** #8001 (E **49** #5983) *and* **Hannsgen, Kenneth B.**, **48** #7053

**Sztajnic, Jerzy** *See* **Grabski, Zbigniew**, **57** #7293

**Tahraoui, Rabah** *See* **Aubert, Gilles**, **56** #1162

**Vincent, Thomas L.** (*with* Brusch, Richard G.) Optimal endpoints. **45** #4241

**Vlasova, Z. A.** (*with* Nikolaev, O. I.) Approximation of the extremals of certain functionals. (Russian) **57** #10539

Secondary classifications:

**Boglaev, I. P.** (*with* Savel′ev, B. V.) Design of an optimum plan for an economic system with stocks of products. (**54** #4617)

**Nazyrov, H. A.** *See* **Satimov, N.**, (**45** #5937) *and* **Satimov, N.**, (**45** #5938)

**Poliščuk, E. M.** Certain new connections of control systems with equations of mathematical physics. I. (Russian) (**47** #3863)

Certain new connections of control systems with equations of mathmatical physics. II. (Russian) (**47** #3864)

**Satimov, N.** (*with* Nazyrov, H. A.) *F*-geodesics, and the solution of a problem of S. Ulam. I. (Russian. Uzbek summary) (**45** #5937)

(*with* Nazyrov, H. A.) Existence of *F*-geodesics, and the solution of a problem of S. Ulam. II. (Russian. Uzbek summary) (**45** #5938)

**Savel′ev, B. V.** *See* **Boglaev, I. P.**, (**54** #4617)

### 49A10 Problems involving ordinary differential equations

**Abesser, H.** Über eine Anwendung der modifizierten Legendretransformation in der Kontrolltheorie. **55** #3902

**Ahmed, Nasiruddin** Existence of optimal controls with frequency constraints in the absence of convexity. **50** #8192

Existence of optimal bandlimited controls without convexity condition. **54** #1041

**Ahmedov, K. T.** (*with* Čaršanbaev, I.) A certain multipoint boundary value problem for a system of differential-extremal equations. (Russian. Uzbek summary) **47** #4090

**Ahundov, A. A.** Optimization of hybrid systems. (Russian. Azerbaijani and English summaries) **58** #23855

**Akimov, L. V.** (*with* Gul′, A. I.) The number of integrals of time optimal control of systems with constraints on the phase coordinates. (Russian) **57** #13614

**Akulenko, L. D.** Asymptotic solution of certain problems of time-optimal type. **54** #13661

**Anan′ina, T. F.** On the problem of control from incomplete data. (Russian) **58** #23856

**Anderson, B. D. O.** *See* **Clements, David J.**, **56** #13017

**Anderson, Joel** Optimal linear control with input derivatives. **45** #1639

**Andreev, V. A.** Synthesis of optimal controls for nonhomogeneous linear systems with a quadratic quality criterion. (Russian) **45** #8343

**Asner, Bernard A., Jr.** (*with* Halanay, Aristide) Delay-feedback using derivatives for minimal time linear control problems. **54** #8383

**Azamov, A.** *See* **Satimov, N.**, **51** #6522

**Bailey, J. E.** Necessary conditions for optimality in a general class of non-linear mixed boundary value control problems. **47** #4091

**Baum, Richard F.** Existence theorems for Lagrange control problems with unbounded time domain. **54** #13662

**Begališvili, G. M.** Not quite weakly differentiable constraints. (Russian. Georgian and English summaries) **49** #3630

A certain essential condition for the existence of an optimal control. (Russian. Georgian and English summaries) **49** #7867

**Beĭlin, A. M.** Exact solution of a certain optimal control problem with restrictions on the phase coordinates. (Russian) **58** #30620

**Belolipeckiĭ, A. A.** Sensitivity of linear time-optimalities to weak phase constraints. (Russian) **52** #15163

**Bensoussan, A.** (*with* Lions, Jacques-Louis) Sur l'approximation numérique d'inéquations quasi-variationnelles stationnaires. **57** #13615

**Berkovitz, Leonard D.** Existence theorems in problems of optimal control without property (*Q*). **54** #3533

Existence theorems in problems of optimal control. **47** #5680

**Bhatt, S. K.** An existence theorem for a fractional control problem. **48** #12195

**Bistrickas, V. B.** Optimal continuous analogues of multistage optimal control processes. (Russian) **58** #23857

**Bittner, Leonhard** The method of moment inequalities in the (optimal) control theory. (Russian. Lithuanian and English summaries) **51** #11225

**Blatt, John M.** Optimal control with a cost of switching control. **56** #9349

**Bolonkin, O. O.** Impulse solutions in optimal control problems. (Russian) **45** #7568

**Bolyčevcev, È. M.** Synthesis of minimax deviations under arbitrary perturbations. (Russian) **48** #12196

**Brunovský, Pavol** The closed-loop time-optimal control. I. Optimality. **50** #8193

**Canh, Nguyen** On a solution of an optimization problem in linear control systems with quadratic performance index. **49** #1265

**Čaršanbaev, I.** *See* **Ahmedov, K. T.**, **47** #4090

**Cesari, Lamberto** An existence theorem without convexity conditions. **52** #4060

**Češkov, M. S.** Optimization principles of periodic motions of systems. (Russian) **45** #1018

**Choudhury, A. K.** On the existence of an optimal solution of the epsilon variational problem. **48** #9485

**Ciskaridze, R. V.** Minimization of certain integral functionals for systems with an invariant norm. (Russian. Georgian and English summaries) **45** #3105

**Clements, David J.** (*with* Anderson, B. D. O.) A solution to the linear-quadratic singular control problem. **56** #13017

**Costal, J. B.** Sur l'existence d'un contrôle en temps minimum. (Italian summary) **54** #8384

**Cvetanov, Ilija P.** Finding the initial values for the auxiliary system in the problem of the time-optimal control of linear objects. (Russian. Czech summary) **52** #1453

**Cvetanov, Mitko M.** Autonomous problems and duality. (Russian. Bulgarian and English summaries) **51** #13808a

Duality in variational problems with fixed endpoints. (Russian. Bulgarian and English summaries) **51** #13808b

Duality in variational problems with free endpoints. (Russian. Bulgarian and English summaries) **51** #13808c

**Damm, Heinz** Über Steuerungsprobleme mit zeitabhängigen Steuerbereichen. (English and French summaries) **54** #13663

**Dauer, Jerald P.** On the optimization of linear control systems using the contraction principle. (Italian summary) **48** #12197

**Delfour, Michel C.** Linear hereditary differential systems and their control. **57** #3932

**Dharmasagar Rao, V.** (*with* Rubio, J. E.) Minimum-norm control of linear systems with partially known initial conditions. **51** #3995

**Dmitriev, M. G.** *See* **Glizer, V. Ja.**, **57** #17435

**Downes, G. L.** *See* **Drummond, J. E.**, **47** #2457

**Drăgan, V.** (*with* Halanay, Aristide) Suboptimal linear controller by singular perturbations techniques. (French and German summary inserts) **55** #8920

**Drummond, J. E.** (*with* Downes, G. L.) The brachistochrone with acceleration: a running track. **47** #2457

**Đukić, Đorde S.** Noether's theorem for optimum control systems. **49** #5979

**Dyhta, V. A.** Minimization of a degenerate quadratic functional in a linear system. (Russian) **58** #2518

**Ekeland, Ivar** Existence de solutions optimales pour des problèmes de contrôle de systèmes gouvernés par des équations différentielles ordinaires. **58** #30588

Discontinuités de champs hamiltoniens et existence de solutions optimales en calcul des variations. **58** #12575

**Étienne, J.** (*with* Mol, A. M.; Winand, J. P.) Sur la théorie du controle optimal. I, II. (English summaries) **45** #8350

**Friedland, Shmuel** (*with* Schiffer, Menahem M.) Global results in control theory with applications to univalent functions. **54** #11129

**Georganas, Nicolaos D.** Invariant imbedding and optimal feedback control. **49** #11342

**Ghanem, M. Z.** Direct method for solving optimal control problems with kinks. **51** #1524

**Gičev, Todor R.** Well-posedness of an optimal control problem with an integral convex efficiency criterion. (Russian) **56** #9350

**Glen, J. A.** Time optimal control and indifference curves of certain second-order systems. **48** #4871

**Glizer, V. Ja.** (*with* Dmitriev, M. G.) Singular perturbations in a linear optimal control problem with a quadratic functional. (Russian) **57** #17435

**Gul′, A. I.** *See* **Akimov, L. V.**, **57** #13614

**Gusev, M. I.** (*with* Kuržanskiĭ, A. B.) On the optimization of control systems in the presence of constraints. I, II. (Russian) **46** #9829

**Haas, Violet B.** On the singular Bolza problem. **56** #1164

**Halanay, Aristide** *See* **Asner, Bernard A., Jr.**, **54** #8383 *and* **Drăgan, V.**, **55** #8920

**Horgan, Cornelius O.** A note on a class of integral inequalities. **48** #9486

**Ikeda, Mineo** (*with* Sakamoto, Kentaro) On the concept of symmetry in Pontryagin's maximum principle. **52** #4061

**Ioffe, A. D.** An existence theorem for a general Bolza problem. **53** #8990

**Kagiwada, Harriet H.** (*with* Kalaba, Robert E.; Thomas, Y.) Exact solution of Pontryagin's equations of optimal control. I. **46** #6119

**Kalaba, Robert E.** *See* **Kagiwada, Harriet H.; et al.**, **46** #6119

**Katz, Philip L.** Closed-form solutions for two optimal control problems having non-linear, norm-invariant systems. **48** #7054

**Kiselev, Ju. N.** Differentiability with respect to initial values of the solution of the equations of the maximum principle in a case that is nearly linear. (Russian) **45** #3102

Asymptotic solution of a certain problem that arises in the theory of optimal processes. (Russian) **46** #6120

**Köhler, Michael** Diskrete Approximation eines zeitoptimalen Kontrollproblems. **50** #10945

**Korobov, V. I.** Reduction of a controllability problem to a boundary value problem. (Russian) **56** #1165

**Kurina, G. A.** Asymptotic solution of a certain classical singularly perturbed optimal control problem. (Russian) **55** #13311

**Kuržanskiĭ, A. B.** *See* **Gusev, M. I.**, **46** #9829

**Leĭfura, V. M.** The asymptotic integration of the equations of a control process in the case of a multiple root of the quasipolynomial. (Russian. English summary) **56** #9351

**Leitmann, G.** Sufficiency for optimal control with state and control constraints. (French,

German and Russian summaries) **45** #4246
(*with* Stalford, Harold L.) A sufficiency theorem for optimal control. **45** #9233
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**Kirillova, F. M.** *See* **Gabasov, R. F.**, (**56** #9403) *and* **Gabasov, R. F.**, (**56** #9404)
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**Klih, Ju. O.** Averaging methods in quasilinear optimal control problems with a quadratic functional. (Russian) **58** #2552

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**Crane, Robert N.** (*with* Stubberud, Allen R.) Closed loop formulations of optimal control problems for minimum sensitivity. (**57** #18986)

**Dončev, Asen L.** Sensitivity analysis of optimal control system with small time delay. (Polish and Russian summaries) (**54** #2269)

**Ekeland, Ivar** (*with* Lebourg, Gérard) Generic Fréchet-differentiability and perturbed optimization problems in Banach spaces. (**55** #4254)

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**Noldus, Erik J. L.** Comments on: "Periodic control: a frequency domain approach" (IEEE Trans. Automatic Control **AC-18** (1973), 33–38) by S. Bittanti, G. Fronza and G. Guardabassi. (**56** #4972)

**Pagan, Adrian** Optimal control of econometric models with autocorrelated disturbance terms. (**53** #4927)

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**Singh, R. N. P.** (*with* Rajamani, V. S.) Minimal-time control of distributed-parameter systems with multiple-norm constraints on the control function. **48** #1000

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**Solomešč, I. A.** *See* **Gol′dšteĭn, Ju. B.; et al.**, (See RŽMat **1972** #6 B493)

**Solomešč, M. A.** *See* **Gol′dšteĭn, Ju. B.; et al.**, (See RŽMat **1972** #6 B493)

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**Zanelli, Vanna** (*with* Fantini, William) Inf-convoluzione e funzioni coniugate generalizzate. **58** #7309

**Zlatskiĭ, V. T.** (*with* Kiforenko, B. N.) Optimum trajectories with singular arcs. **56** #6519

**Collection:**

**Theory of optimal processes** ★Сборник работ по теории оптимальных процессов. Вып. 1. (Russian) [Collection of papers on the theory of optimal processes. No. 1] **57** #7320

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**Abonyi, I.** Propagation of surfaces of weak discontinuity as behaviour of broken extremals in classical field theory. (**58** #20029)

**Arkin, V. I.** (*with* Levin, V. L.) Convexity of the values of vector integrals, theorems on measurable selection, and variational problems. (Russian) (**53** #8893)

**Aubin, Jean-Pierre** (*with* Moulin, Hervé) Condition nécessaire et suffisante d'existence d'une solution du problème dual d'un problème d'optimisation. (**46** #684)

**Bell, David J.** A proposed working session on singular control problems. (**58** #33341)

**Binder, Hans-Joachim** (*with* Sturm, Klaus-Jürgen) Modelle optimaler Steuerungsprobleme, die durch Integralgleichungen beschrieben werden. (**58** #33343)

**Bojadžiev, Todor L.** (*with* Tkalič, V. S.) Conservation laws of nonholonomic mechanics in terms of quasi-variables. (Russian) (**58** #14076)

**Borwein, J. M.** Proper efficient points for maximizations with respect to cones. (**55** #7407)

**Brosowski, Bruno** (*with* Hoffmann, K.-H.) Eine Variationsungleichung und Anwendungen. (English summary) (**50** #5314)

**Gamkrelidze, R. V.** ★Основы оптимального управления. (Russian) [Fundamentals of optimal control] (**58** #33350a)

**Halkin, Hubert** Brouwer fixed point theorem versus contraction mapping theorem in optimal control theory. (**54** #10525)

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**Marnelius, Robert** Point transformations and non-linear systems in quantum theory. (**58** #25615)

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**Kočetkov, Ju. A.** Optimal control of deterministic systems. (**58** #15489)
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**Nikolaev, O. I.** *See* **Vlasova, Z. A.,** (**57** #11045)
**Ponomarenko, V. I.** *See* **Lihtarnikov, A. L.; et al.,** (**55** #1200)
**Rubinov, A. M.** *See* **Kutateladze, S. S.,** (**46** #7605)
**Taylor, James G.** Target selection in Lanchester combat: linear-law attrition process. (**48** #5661)
**Vlasova, Z. A.** (*with* Nikolaev, O. I.) The existence of the solution of a difference scheme for a certain variational problem. (Russian) (**57** #11045)

## 49C10 Free problems and problems involving partial differential equations

**Amouroux, Marcel** Sur une méthode de détermination de l'emplacement optimal des points d'action pour une classe de systèmes linéaires à paramètres répartis. **48** #2873
**Armsen, Moritz** An imbedding theorem in the calculus of variations for multiple integrals. **51** #4002 (E **55** #1196)
Addendum: "An imbedding theorem in the calculus of variations for multiple integrals" (Aequationes Math. **12** (1975), 65–79). **55** #1196
**Barbieri, Francesco** (*with* Facchinetti, Gisella) Condizione necessaria per un minimo in spazi con pseudoprodotti interni perturbati. **51** #13658
**Beckert, Klaus** Zur Berechnung der Koeffizienten Jacobischer Differentialgleichungssysteme der Variationsrechnung. **58** #18052
**Cohen, Gerald H.** *See* **Jain, Anil K., 46** #768 *and* **Jain, Anil K., 48** #9509
**Daniljuk, Ī. Ī.** The global properties of the set of solutions of a certain nonlinear problem. (Ukrainian. English and Russian summaries) **53** #14274
**Facchinetti, Gisella** *See* **Barbieri, Francesco, 51** #13658
**Fuchs, Günter** Zur Feldtheorie Lagrangescher Variationsprobleme in Parameterdarstellung. **51** #1550
**Grässer, H. S. P.** The complete figure for second order multiple integral problems in the calculus of variations. **58** #18053
**Jain, Anil K.** (*with* Cohen, Gerald H.) A method of characteristics invariant imbedding for distributed control problems. **48** #9509
(*with* Cohen, Gerald H.) A method of characteristics and invariant imbedding for distributed control problems. **46** #768
**Klötzler, Rolf** Feldtheorie und numerische Probleme der Variationsrechnung. **45** #2549
Zur Feldtheorie der mehrdimensionalen Variationsrechnung. **48** #12219
**Lions, Jacques-Louis** Variational problems and free boundary problems. **58** #30662
**Lipschutz, S. P.** A solution of the "converse canonical problem" for multiple integrals in the calculus of variations. **45** #2551
**Logan, John David** Conformal invariance of multiple integrals in the calculus of variations. **50** #10969
**Roxin, Emilio O.** Carathéodory fields in optimal control problems. **58** #30663
**Rund, Hanno** The canonical theory of second order multiple integrals in the calculus of variations. (Afrikaans summary) **55** #8933
Transversality and fields of extremals of multiple integral problems in the calculus of variations. **50** #1085
Transformation theory of the canonical formalism associated with multiple integral variational problems. **50** #10968
Conservation criteria, canonical transformations, and integral invariants in the field theory of Carathéodory for multiple integral variational problems. **52** #9044
Adjoint problems in the calculus of variations of multiple integrals. **55** #3925
**Scriba, Carl-Heinz** Über die mehrdimensionale Legendre-Transformation. **52** #11708
**Zappalà, Giuseppe** Sul principio di Hamilton per i sistemi a massa variabile. **58** #18054

Secondary classifications:

**Angel, Edward** (*with* Bellman, Richard) ★Dynamic programming and partial differential equations. (**50** #11822)
*See also* **Bellman, Richard,** (**50** #11823)
**Bellman, Richard** (*with* Angel, Edward) ★Динамическое программирование и уравнения в частных производных. (Russian) [Dynamic programming and partial differential equations] (**50** #11823)
*See also* **Angel, Edward,** (**50** #11822)
**(Čebotarev, S. P.)** *See* **Bellman, Richard; et al.,** (**50** #11823)
**Ćuk, N.** *See* **Lazarević, B.; et al.,** (**47** #2468)
**Fusciardi, Alfonso** (*with* Mosco, Umberto; Scarpini, Francesco; Schiaffino, Andrea) A dual method for the numerical solution of some variational inequalities. (**48** #2865)
**Krasovskiĭ, A. A.** A new solution to the problem of a control system analytical design. (French, German, and Russian summaries) (**48** #13373)
**Krivošeīn, L. E.** *See* **Oğuztöreli, Mehmet Namık; et al.,** (**47** #5470)
**Lazarević, B.** (*with* Obradović, D.; Ćuk, N.) Modal approach to the optimal control system synthesis of a nuclear reactor. (**47** #2468)
**(Letov, A. M.)** *See* **Bellman, Richard; et al.,** (**50** #11823)
**Lin, Jiguan G.** Proper equality constraints and maximization of index vectors. (**58** #32994)
**Mangeron, Dumitru Ion** *See* **Oğuztöreli, Mehmet Namık; et al.,** (**47** #5470)
**Mosco, Umberto** *See* **Fusciardi, Alfonso; et al.,** (**48** #2865)
**Obradović, D.** *See* **Lazarević, B.; et al.,** (**47** #2468)
**Oğuztöreli, Mehmet Namık** (*with* Mangeron, Dumitru Ion; Krivošeīn, L. E.; Poterasu, Victor F.) Programmation dynamique des problèmes optimaux concernant les systèmes de contrôle aux paramètres distribués. Application à certain système polyvibrant. I. (**47** #5470)
**Pavlov, V. G.** Construction of invariant solutions in a particular problem of analytic design of controllers. (**53** #12691)
**Poterasu, Victor F.** *See* **Oğuztöreli, Mehmet Namık; et al.,** (**47** #5470)
**Rund, Hanno** Clebsch potentials and variational principles in the theory of dynamical systems. (**57** #14042)
**Scarpini, Francesco** *See* **Fusciardi, Alfonso; et al.,** (**48** #2865)
**Schiaffino, Andrea** *See* **Fusciardi, Alfonso; et al.,** (**48** #2865)

## 49C15 Problems in abstract spaces or involving functional relations other than differential equations

**Baldwin, J. F.** Gambling and curve-fitting problems using dynamic programming. **46** #4330
**Bellman, Richard** (*with* Zadeh, L. A.) Decision-making in a fuzzy environment. **46** #769
**Beluhin, V. P.** A parametric method for solving a linear dynamic programming problem. **56** #9405
**Bensoussan, A.** Contrôle impulsionnel et inéquations quasi variationelles. **54** #11146
**Bistrickas, V. B.** An infinite-stage dichotomous solution process of dynamic programming. (Russian. Lithuanian and English summaries) **48** #7077
*See also* **Rutkauskas, Pjatras, 47** #7561
**Bittner, Leonhard** New conditions for the validity of the Lagrange multiplier rule. I. **45** #5843
**Cambini, Alberto** Functional aspects and validity of dynamic programming method. **55** #11134
**Charrier, Pierre** (*with* Vivaldi, Maria Agostina) Existence d'une solution régulière d'une inéquation quasi-variationnelle d'évolution avec conditions de Dirichlet. (Italian summary) **58** #2555
**Ficheux, Françoise** *See* **Rubinšteĭn, G. Š., 55** #13323
**Fox, Bennett L.** Discretizing dynamic programs. **48** #2874
**Gessner, Peter** (*with* Spremann, Klaus) ★Optimierung in Funktionenräumen. **49** #3642
**Ivanilov, Ju. P.** (*with* Malašenko, Ju. E.) A method for the solution of a linear dynamical problem. (Russian. English summary insert) **49** #5995
**Ivanov, V. A.** (*with* Leskin, A. A.) Optimization of the parameters of linear discrete control systems. (Russian) **56** #13058
**Janin, Robert** Sur la dualité en programmation dynamique. **51** #1552
**Kruger, A. Ja.** Some theorems on the closure of functions with applications to subdifferential calculus. (Russian. English summary) **58** #23918
**Lee, Chiu Fan** Optimization of control systems described by Volterra integral equations. (Romanian summary) **46** #770
**Leskin, A. A.** *See* **Ivanov, V. A., 56** #13058
**Levitin, E. S.** The differential properties of the optimal value of parametric mathematical programming problems. (Russian) **50** #1086
**Logan, John David** A canonical formalism for systems governed by certain difference equations. **48** #7078
**Malašenko, Ju. E.** *See* **Ivanilov, Ju. P., 49** #5995
**Matolcsi, Tamás** On a certain new method for computing the optimum. (Hungarian) **50** #8221
**Mereau, Pierre** (*with* Powers, William F.) The Darboux point. **53** #3831
**Powers, William F.** *See* **Mereau, Pierre, 53** #3831
**Reiss, Wolfgang** Ein Beitrag zur Optimierung dynamischer Systeme großer Dimension. **50** #14433
**Rihsiev, B. B.** *See* **Satimov, N., 58** #23919
**Rubinšteĭn, G. Š.** (*with* Ficheux, Françoise) Quasiconvex preorders. (Russian) **55** #13323

**Rutkauskas, Pjatras** (*with* Bistrickas, V. B.) A continuous analogue of the distribution process of dynamic programming. (Russian. Lithuanian and English summaries) 47 #7561

**Satimov, N.** (*with* Rihsiev, B. B.) The evasion problem for L. S. Pontrjagin's generalized control example. (Russian. Uzbek summary) **58** #23919

**Spremann, Klaus** *See* **Gessner, Peter**, **49** #3642

**Vivaldi, Maria Agostina** *See* **Charrier, Pierre**, **58** #2555

**White, D. J.** A structured optimal route policy. **57** #17463

**Zadeh, L. A.** *See* **Bellman, Richard**, **46** #769

**Zimmermann, Karel** Correction: "A stability of the method of approximate solution of the systems of functional equations that occur in dynamic programming". (Czech) **45** #3060

Secondary classifications:

**Bertsekas, Dimitri P.** Monotone mappings with application in dynamic programming. (**55** #8934)

**Blackwell, David** The stochastic processes of Borel gambling and dynamic programming. (**53** #9350)

**Boylan, Stanley L.** Uniqueness of solutions to function-space differential equations using infinite-series and integral methods. (**49** #9454)

**Fusciardi, Alfonso** (*with* Mosco, Umberto; Scarpini, Francesco; Schiaffino, Andrea) A dual method for the numerical solution of some variational inequalities. (**48** #2865)

**Kurlandzki, Jerzy** Lagrangian formalism in distribution spaces. I. (Russian summary) (**57** #18350a)
Lagrangian formalism in distribution spaces. II. Distributions of finite order. (Russian summary) (**57** #18350b)
Lagrangian formalism in distribution spaces. III. Domains with the boundary. (Russian summary) (**57** #18350c)
Lagrangian formalism in distribution spaces and conservation laws. (Russian summary) (**57** #18350d)

**Mayberry, John P.** *See* **Pugh, George E.**, (**55** #12130)

**Mishra, J.** (*with* Rajamani, V. S.) Optimal control of discrete time-delay systems via dynamic programming. (**53** #12698)

**Mitten, L. G.** Preference order dynamic programming. (**55** #12124)

**Mosco, Umberto** *See* **Fusciardi, Alfonso; et al.**, (**48** #2865)

**Pugh, George E.** (*with* Mayberry, John P.) Theory of measures of effectiveness for general-purpose military forces. I. A zero-sum payoff appropriate for evaluating combat strategies. (**55** #12130)
Theory of measures of effectiveness for general-purpose military forces. II. Lagrange dynamic programming in time-sequential combat games. (**55** #12131)

**Rajamani, V. S.** *See* **Mishra, J.**, (**53** #12698)

**Scarpini, Francesco** *See* **Fusciardi, Alfonso; et al.**, (**48** #2865)

**Schiaffino, Andrea** *See* **Fusciardi, Alfonso; et al.**, (**48** #2865)

**Weitzman, Martin L.** Duality theory for infinite horizon convex models. (**49** #2103)

## 49C99 None of the above, but in this section

**Bačoĭ, G. S.** *See* **Egorov, A. I.**, **58** #2556

**Bělov, Ju. A.** Characteristics properties of time-optimality. (Russian) (See RŽMat **1974** #7 B579; MR **57** #7320)

**Bensoussan, A.** (*with* Lions, Jacques-Louis) Nouvelle formulation de problèmes de contrôle impulsionnel et applications. **47** #5690
(*with* Goursat, Maurice; Lions, Jacques-Louis) Contrôle impulsionnel et inéquations quasi-variationnelles stationnaires. **47** #5691
(*with* Lions, Jacques-Louis) Contrôle impulsionnel et inéquations quasi-variationnelles d'evolution. **47** #5692
(*with* Lions, Jacques-Louis) Inéquations variationnelles non linéaires du premier et du second ordre. **47** #5693
(*with* Lions, Jacques-Louis) Nouvelles méthodes en contrôle impulsionnel. (English summary) **52** #11709
(*with* Lions, Jacques-Louis) Contrôle impulsionnel et systèmes d'inéquations quasi variationnelles. **49** #5996

**Berikašvili, V. A.** Solution of a functional equation of the problem of optimal inventory control. (Russian) (Not reviewed)

**Bertsekas, Dimitri P.** Monotone mappings with application in dynamic programming. **55** #8934

**Bistrickas, V. B.** A maximum principle for infinite stage optimal control processes. (Russian. Lithuanian and English summaries) **54** #11147

**Blakeslee, J. S.** *See* **Logan, John David**, **52** #9046

**Bolonkin, O. O.** Solution of discrete problems of optimal control on the basis of a general minimum principle. (Russian. English summary) **46** #771

**Boni, Mauro** (*with* Brandi, Primo) Teoremi d'esistenza per l'integrale del calcolo delle variazioni nel caso ordinario. **52** #11710
(*with* Brandi, Primo) Varizione, classica e generalizzata, con peso. **52** #11711

**Borngräber, Ernst-Egon** Die Herleitung von Lösungsformeln für einen dynamischen Aufteilungsprozess mit dem Bellman-Algorithmus. (English and Russian summaries) **56** #3715

**Brandi, Primo** *See* **Boni, Mauro**, **52** #11710 *and* **Boni, Mauro**, **52** #11711

**Brandstatter, J. J.** (*with* Schoenberg, M.) Dynamic programming, Fermat's principle and stochastic eikonal equations. **50** #3070

**Buzurnjuk, S. N.** A problem of the control of the incoherent heat and mass exchange process. (Russian) **58** #23920

**Clarke, Frank H.** Necessary conditions for a general control problem. **58** #30664

**Cvetanov, Mitko M.** *See* **Popova, Anna A.**, **53** #11462 *and* **Popova, Anna A.**, **55** #3926

**Dreyfus, Stuart E.** Dynamic programming and the discrete maximum principle. **58** #30665

**Đukić, Đorđe S.** (*with* Vujanović, Božidar D.) Canonical transformations and the Hamilton-Jacobi theorem in the optimum control theory. (German and Russian summaries) **57** #7323

**Egorov, A. I.** (*with* Bačoĭ, G. S.) The solution of a certain problem of the synthesis of optimal control of the heat conduction process. (Russian) **58** #2556

**Evans, F. J.** *See* **Jones, D. L.**, **49** #3643

**Faldin, N. V.** (*with* Makarov, N. N.) The maximum principle for systems with rigid stops. (Russian) **58** #12624

**Fortet, Robert** Remarques sur la programmation dynamique. (With discussion) **49** #11352

**Galperin, Efrim A.** The spectral equivalence of functionals and the solvability of optimal stabilization problems. **50** #3071

**Gavrikov, A. I.** *See* **Slugin, S. N.**, **57** #17464

**Goursat, Maurice** *See* **Bensoussan, A.; et al.**, **47** #5691

**Hordijk, Arie** ★On the convergence of the average expected return in dynamic programming. **52** #15181
On the convergence of the average expected return in dynamic programming. **50** #3072

**Israilov, I.** Existence and stability of the solution of a certain class of functional equations of dynamic programming. (Russian. Uzbek summary) **52** #9045

**Ivanilov, Ju. P.** (*with* Propoĭ, A. I.) Duality relations in linear dynamic programming. **58** #2557

**Ivanov, A. P.** *See* **Kondrat'ev, V. V.**, **49** #11353

**Iwamoto, Seiichi** Inverse theorem in dynamic programming. I. **56** #1176a
Inverse theorem in dynamic programming. II. **56** #1176b
Inverse theorem in dynamic programming. III. **56** #1176c
Dynamic programming approach to inequalities. **56** #1177

**Jones, D. L.** (*with* Evans, F. J.) Variational analysis of electrical networks. **49** #3643

**Junusov, M.** Optimal control problems connected with agrocenotic models. (Russian. Tajiki summary) **58** #23921

**Kokame, Hideki** On some aspects in stochastic dynamic programming with terminal region. **58** #23922

**Kondrat'ev, V. V.** (*with* Ivanov, A. P.) Synthesis of optimal discrete regulators with varying intervals of discreteness for multiply connected objects. (Russian) **49** #11353

**Krasovskiĭ, A. A.** A certain generalization of the problem of the analytic design of control systems. (Russian. English summary) **54** #5941

**Kun, L. A.** (*with* Pronozin, Ju. F.) Regularization of the method of dynamic programming in linear time-optimal problems. **48** #7079

**Lave, Roy E., Jr.** *See* **Satia, Jay K.**, **49** #3644

**Leonov, V. V.** A study of numerical methods for the construction of the optimal control in the case of controllable processes described by systems of ordinary differential equations. (Russian) **49** #9712 (E **50** #14434)
Erratum: "A study of numerical methods for the construction of the optimal control in the case of controllable processes described by systems of ordinary differential equations" (Problemy Kibernet. No. 27 (1973), 75–86). (Russian) **50** #14434

**Lew, Art** Stability, prediction-correction, and dynamic programming. **53** #9006

**Lions, Jacques-Louis** *See* **Bensoussan, A.**, **47** #5690; **Bensoussan, A.; et al.**, **47** #5691; **Bensoussan, A.**, **47** #5692; **Bensoussan, A.**, **47** #5693; **Bensoussan, A.**, **49** #5996 *and* **Bensoussan, A.**, **52** #11709

**Logan, John David** (*with* Blakeslee, J. S.) An invariance theory for second-order variational problems. **52** #9046

**Makarov, N. N.** *See* **Faldin, N. V.**, **58** #12624

**Mosco, Umberto** Régularité forte de la fonction d'Hamilton-Jacobi du contrôle stochastique impulsionnel et continu. (English summary) **57** #13644

**Nightingale, J. M.** *See* **Tzafestas, S. G.**, **47** #4107

**Oosthuizen, H. J.** A canonical formalism for parameter invariant multiple integral problems on complex spaces. (Afrikaans. English summary) **51** #11245

**Orkin, Michael** On stationary policies—the general case. **49** #7885

**Petrov, N. N.** The Bellman problem for a time-optimality problem. (Russian) **51** #4003

**Piontkovskiĭ, A. A.** (*with* Siharulidze, G. G.) Non-Bellman functionals for extremal problems of the combinatorial type. **56** #6520

**Popova, Anna A.** (*with* Cvetanov, Mitko M.) Duality in problems of the calculus of variations of arbitrary order higher than one. (Russian) **53** #11462
(*with* Cvetanov, Mitko M.) Piecewise continuous solutions of a certain class of variational problems. (Russian) **55** #3926

**Pourciau, B. H.** Analysis and optimization of Lipschitz continuous mappings. **56** #13059

**Pronozin, Ju. F.** *See* **Kun, L. A.**, **48** #7079

**Propoĭ, A. I.** *See* **Ivanilov, Ju. P.**, **58** #2557

**Puhov, G. È.** (*with* Zlatkin, A. A.) Synthesis of high order optimal systems by a dynamic programming method. (Russian) **56** #13060

**Rosenthal, Arnie** Nonserial dynamic programming is optimal. **58** #2558

**Rutkauskas, Pjatras** The optimal continuous version for *n*-choice problem of dynamic programming. (Russian. Lithuanian and English summaries) **58** #30666

**Satia, Jay K.** (*with* Lave, Roy E., Jr.) Markovian decision processes with probabilistic observation of states. **49** #3644

**Schäfer, Wolfgang** *See* **Sebastian, Hans-Jürgen**, **58** #12623

**Schäl, Manfred** On continuous dynamic programming with discrete time-parameter. **47** #4106

**Schoenberg, M.** *See* **Brandstatter, J. J.**, **50** #3070

**Sebastian, Hans-Jürgen** (*with* Schäfer, Wolfgang) An extended functional equation as a necessary and sufficient optimality condition for a discrete control problem with incomplete information. (German and Russian summaries) **58** #12623

**Siharulidze, G. G.** *See* **Piontkovskiĭ, A. A.**, **56** #6520

**Slugin, S. N.** (*with* Gavrikov, A. I.) A method of two-sided approximations for a search for the optimum with constraints of equality type. (Russian) **57** #17464

**Sobieszek, Wiesław** On the functional equations of the dynamic programming with a singular point. **58** #7311

**Tinhofer, Gottfried** Eine strenge Begründung dynamischer Programme und die Bestimmung ausgezeichneter Knoten- oder Kantenmengen in endlichen Graphen. **47** #9394

**Tkalič, E. F.** (*with* Tkalič, V. S.) An algorithm for the synthesis of the optimal control of a one-dimensional system on the basis of the total integral. (Russian) **58** #7312
**Tkalič, V. S.** *See* **Tkalič, E. F., 58** #7312
**Tzafestas, S. G.** (*with* Nightingale, J. M.) Differential dynamic-programming approach to optimal nonlinear distributed-parameter control systems. **47** #4107
**Vit, Karel** Forward differential dynamic programming. **55** #13324
**Vujanović, Božidar D.** *See* **Đukić, Đorđe S., 57** #7323
**Young, L. C.** Strengthening Carathéodory's method to apply in control problems. **58** #12625
**Zlatkin, A. A.** *See* **Puhov, G. È., 56** #13060

Secondary classifications:

**Alekseev, O. G.** (*with* Volodos', I. F.) Combined use of dynamic programming and branch-and-bound methods in discrete-programming problems. (**55** #9954)
**Beckmann, Martin J.** Dynamic programming of some integer and nonlinear programming problems. (**55** #9996)
**Bellman, Richard** (*with* Kashef, Bayesteh; Vasudevan, R.) Splines via dynamic programming. (**46** #8376)
**Beluhin, V. P.** A projection and partitioning method for linear dynamic programming problems. (Russian) (**58** #9291)
**Benton, Stanley H., Jr.** ★The Hamilton-Jacobi equation. (**56** #813)
**Bertelè, Umberto** (*with* Brioschi, Francesco) On non-serial dynamic programming. (**47** #1281)
**Bertsekas, Dimitri P.** Convergence of discretization procedures in dynamic programming. (**56** #5024)
**Brioschi, Francesco** *See* **Bertelè, Umberto**, (**47** #1281)
**Bühler, Wolfgang F.** (*with* Deutler, Tilmann) Zur Berechnung kosten- und varianzminimaler Schichtungen mit Hilfe der dynamischen Programmierung. (English summary) (**56** #4852)
**Deutler, Tilmann** *See* **Bühler, Wolfgang F.**, (**56** #4852)
**Distéfano, José Néstor** Dynamic programming and a max-min problem in theory of structures. (**47** #1361)
**Đukić, Đorđe S.** A note on Hamilton's principle. (**54** #4235)
**Fichera, G.** (*with* Sneider, Maria Adelaide) Abstract and numerical aspects of the problem concerning the computation of eigenfrequencies of continuous systems. (**58** #3853)
**Friedman, John L.** (*with* Schutz, Bernard F., Jr.) Lagrangian perturbation theory of nonrelativistic fluids. (**58** #14982)
**Gabasov, R. F.** (*with* Kirillova, F. M.) Dynamic programming in the theory of optimal singular control. (**47** #925)
**Gertner, Izidor** (*with* Rappaport, David) Dynamic programming conditions for optimal control of discontinuous processes. (**58** #20743)
**Gościński, Andrzej** (*with* Jakubowski, Ryszard) A stochastic automaton as a dynamic programming model. (Polish. English and Russian summaries) (**46** #6976)
**Ibaraki, Toshihide** On the computational efficiency of branch-and-bound algorithms. (**58** #26010)
**Iwamoto, Seiichi** Inverse dynamic programming. II. (**55** #12118)
**Jakubowski, Ryszard** *See* **Gościński, Andrzej**, (**46** #6976)
**Kashef, Bayesteh** *See* **Bellman, Richard; et al.**, (**46** #8376)
**Kirillova, F. M.** *See* **Gabasov, R. F.**; (**47** #925)
**Logan, John David** First integrals in the discrete variational calculus. (**48** #6739)
**Meisel, William S.** *See* **Payne, Harold J.**, (**56** #10126)
**Payne, Harold J.** (*with* Meisel, William S.) An algorithm for constructing optimal binary decision trees. (**56** #10126)
**Pronozin, Ju. F.** Study of the smoothness properties of the Bellman function in time-optimal problems, based on the equation of motion of the system. I. The linear case. (**58** #12601a)
Investigation of the smoothness properties of the Bellman function in terms of the equation of motion of a system in optimum response problems. II. Nonlinear case. (**58** #12601b)
**Rappaport, David** *See* **Gertner, Izidor**, (**58** #20743)
**Ross, Sheldon M.** Dynamic programming and gambling models. (**49** #12101)
**Sankoff, David** Matching sequences under deletion/insertion constraints. (**46** #1372)
**Schutz, Bernard F., Jr.** *See* **Friedman, John L.**, (**58** #14982)
**Sibley, Daivd S.** Permanent and transitory income effects in a model of optimal consumption with wage income uncertainty. (**53** #12540)
**Sneider, Maria Adelaide** *See* **Fichera, G.**, (**58** #3853)
**Vasudevan, R.** *See* **Bellman, Richard; et al.**, (**46** #8376)
**Volodos', I. F.** *See* **Alekseev, O. G.**, (**55** #9954)
**White, D. J.** Dynamic programming and duality in linear programming. (**55** #7379)

## 49Dxx Methods of successive approximations

**Bensoussan, A.** (*with* Lions, Jacques-Louis) ★Applications des inéquations variationnelles en contrôle stochastique. **58** #23923
**Budak, B. M.** (*with* Vasil'ev, F. P.) ★Приближенные методы решения задач оптимального управления. Вып. 1. (Russian) [Approximate methods for the solution of optimal control problems. No. 1] **54** #8401
(*with* Vasil'ev, F. P.) ★Приближенные методы решения задач оптимального управления. Вып. 2. (Russian) [Approximate methods for the solution of optimal control problems. No. 2] **54** #8402
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**Yeo, B. P.** (*with* Waldron, K. J.; Goh, Bean San) Optimal initial choice of multipliers in the quasilinearization method for optimal control problems with bounded controls. **50** #3075

**Zolezzi, Tullio** On convergence of minima. (Italian summary) **48** #7083

Secondary classifications:

**Bensoussan, A.** (*with* Lions, Jacques-Louis) Contrôle impulsionnel et inéquations quasi-variationnelles d'evolution. (**47** #5692)

**Binder, Hans-Joachim** (*with* Stollberg, Jürgen) Kombination von Maximumprinzip und dynamischer Optimierung. (**53** #15481)

**Bojanov, Borislav D.** (*with* Cvetanov, Mitko M.) An extremal problem. (Russian. English summary) (**54** #13378)

**Bryksin, V. E.** The method of nets for estimating the effectiveness of strategies when the information about the arrangement of the operation is incomplete. (**52** #10079)

**Comincioli, Valeriano** Un risultato relativo a disequazioni variazionali d'evoluzione per operatori del primo ordine in *t* con termini di ritardo. (French summary) (**46** #9826)

**Conn, Andrew R.** (*with* Pietrzykowski, Tomasz) A penalty function method converging directly to a constrained optimum. (**55** #13777)

**Cvetanov, Mitko M.** *See* **Bojanov, Borislav D.,** (**54** #13378)

**Diguglielmo, Alain** Approximation par pas fractionnaires de problèmes de contrôle gouvernés par des équations paraboliques et avec contrôle frontière. (**46** #2200)

**Dmitriev, M. G.** *See* **Glizer, V. Ja.,** (**56** #770)

**Evans, John P.** (*with* Gould, F. J.) An existence theorem for penalty function theory. (**50** #12262)

**Fagiuoli, Enrico** On the derivation of some minimization algorithms from the Lagrangian. (**51** #12337)

**Fedorov, V. V.** A minimax optimal control problem with linked variables. (Russian) (**57** #18987)

**Fletcher, R.** An ideal penalty function for constrained optimization. (**52** #10046)

**Frick, Pieter A.** An integral formulation of the ε-problem and a new computational approach to control function optimization. (**56** #13620)
**Gal′perin, A. M.** On the theory of methods of possible directions. I. (Russian. English summary insert) (**46** #2448)
**Gibson, J. A.** (*with* Hoy, W. Sew) Time varying terminally restrained optimal control assessment. (**58** #15485)
**Glizer, V. Ja.** (*with* Dmitriev, M. G.) The connection between singular perturbations and the method of penalty functions. (Russian) (**56** #770)
**Gould, F. J.** *See* **Evans, John P.**, (**50** #12262)
**Hiratsuka, S.** *See* **Nishida, N.; et al.**, (**58** #20701)
**Hoy, W. Sew** *See* **Gibson, J. A.**, (**58** #15485)
**Itoh, Kumiko** Computation of optimal controls in a finite Chebyshev series for the integral quadratic cost with cubic control restraint. (**58** #13739)
**Kaljakin, Léonid A.** Approximate methods for the solution of nonlinear boundary value problems with a small parameter. (Russian) (**53** #14243)
**Kluge, Reinhard** Näherungsverfahren zur approximativen Lösung nichtlinearer Variationsungleichungen. (**46** #9827)
**Korovin, S. K.** (*with* Utkin, V. I.) Method of piecewise smooth penalty functions. (**56** #17843)
**Lapidus, Leon** *See* **Nishida, N.; et al.**, (**58** #20701)
**Lautala, P. A. J.** *See* **Orava, P. Jussi**, (**58** #19261)
**Lions, Jacques-Louis** *See* **Bensoussan, A.**, (**47** #5692)
**Liu, Y. A.** *See* **Nishida, N.; et al.**, (**58** #20701)
**Matzeu, Michele** Su un tipo di continuità dell'operatore subdifferenziale. (English summary) (**57** #1220)
**Nishida, N.** (*with* Liu, Y. A.; Lapidus, Leon; Hiratsuka, S.) An effective computational algorithm for suboptimal singular and/or bang-bang control. (**58** #20701)
**Orava, P. Jussi** (*with* Lautala, P. A. J.) A method for solving two-point boundary-value problems of difference equations. (**58** #19261)
**Pietrzykowski, Tomasz** *See* **Conn, Andrew R.**, (**55** #13777)
**Poljak, B. T.** The rate of convergence of the penalty function method. (Russian) (**45** #2547)
**Potter, James E.** *See* **Womble, M. Edward; et al.**, (**54** #14373)
**Shohdohji, Tsutomu** An algorithm for obtaining global optima for multi-variable multi-modal functions. (Japanese. English summary) (**56** #17082)
**Šolohovič, V. F.** The numerical solution of unstable extremal problems. (Russian) (**47** #9306)
**Speyer, Jason L.** *See* **Womble, M. Edward; et al.**, (**54** #14373)
**Stephanopoulos, George** (*with* Westerberg, Arthur W.) The use of Hestenes' method of multipliers to resolve dual gaps in engineering system optimization. (**51** #14999)
**Stollberg, Jürgen** *See* **Binder, Hans-Joachim**, (**53** #15481)
**Tjatjuškin, A. I.** *See* **Vasil′ev, O. V.**, (**57** #8017)
**Ülger, Ali** Méthode de pénalisation sur des espaces de Banach non réflexifs. (English summary) (**55** #11120)
**Utkin, V. I.** *See* **Korovin, S. K.**, (**56** #17843)
**Vasil′ev, O. V.** (*with* Tjatjuškin, A. I.) On the numerical solution of linear time-optimality problems. (Russian) (**57** #8017)
**Weatherwax, R.** General Lagrange multiplier theorems. (**50** #15927)
**Westerberg, Arthur W.** *See* **Stephanopoulos, George**, (**51** #14999)
**Womble, M. Edward** (*with* Potter, James E.; Speyer, Jason L.) Approximations to Riccati equations having slow and fast modes. (**54** #14373)

## 49D35 Methods of linear programming type

**Barnes, Earl R.** A geometrically convergent algorithm for solving optimal control problems. **47** #931
**Bergmann, Joachim** *See* **Nolte, Klaus**, **58** #23937
**Berščanskiĭ, Ja. M.** *See* **Meerov, M. V.**, **52** #1479 *and* **Meerov, M. V.**, **52** #6538
**Borovs′ka, T. T.** (*with* Čeredničenko, V. M.) The problem of determining the admissible extremum in parametric optimization. (Russian. English summary) **58** #7326
**Čeredničenko, V. M.** *See* **Borovs′ka, T. T.**, **58** #7326
**Citron, S. J.** *See* **Reid, R. W.**, **46** #8012
**Dargeĭko, L. F.** *See* **Volkovič, V. L.**, **49** #1295
**Daugavet, V. A.** Alternance properties of the solutions of nonlinear minimax problems with nonlinear constraints. (Russian) **58** #7327
**Drews, William P.** A simplex-like algorithm for continuous-time linear optimal control problems. **51** #6538
**Fridman, V. G.** *See* **Meerov, M. V.**, **52** #1478
**Hartberger, Ronald J.** Representation extended to continuous time. **51** #6537
**Jakovlev, V. M.** One approach to the solution of the problem of optimizing the final state of linear discrete control systems. (Russian) **58** #7328
**Meerov, M. V.** (*with* Fridman, V. G.) Linear programming in Hilbert space for optimalizing a class of multivariable systems. **52** #1478
(*with* Berščanskiĭ, Ja. M.) Optimizing one class of large-scale systems. **52** #1479
(*with* Berščanskiĭ, Ja. M.) Methods for the optimization of a certain class of dynamical systems. (Russian) **52** #6538
**Naumov, N. P.** (*with* Šabunin, M. I.) Taking into account phase constraints in linear programming problems with a free right hand endpoint. (Russian) **56** #1179
**Nolte, Klaus** (*with* Bergmann, Joachim) Zur Konvergenz des Algorithmus von Krylov und Černous′ko. II. (English and Russian summaries) **58** #23937
**Reid, R. W.** (*with* Citron, S. J.) On noninferior performance index vectors. **46** #8012
**Rubinov, M. M.** Some examples of the intrinsic seminorm of linear programming problems. (Russian) **48** #9512
**Rudolph, Helmut** Kapazitierte lineare Programme in Funktionenräumen. **58** #23938
**Šabunin, M. I.** *See* **Naumov, N. P.**, **56** #1179
**Segers, Richard G.** A generalised function setting for dynamic optimal control problems. **51** #6536
**Vereskov, A. I.** Use of the gulch descent in block programming. (Russian) **48** #12220
**Volkovič, V. L.** (*with* Dargeĭko, L. F.) A certain algorithm for the selection of a compromise solution for linear criteria. (Russian. English summary insert) **49** #1295

Secondary classifications:

**Babat, L. G.** Approximate computation of a linear function on the vertices of an *n*-dimensional unit cube. (Russian) (**56** #4154)
**Barmish, Bobby Ross** Envelope correspondence and its application to the design of guaranteed error controllers. (**57** #9198)
**Berščanskiĭ, Ja. M.** *See* **Meerov, M. V.**, (**57** #9081a) *and* **Meerov, M. V.**, (**57** #9081b)
**Bravyĭ, M. Ja.** (*with* Sobolev, I. V.) An attempt at solving a linear programming problem with random technological coefficients. (Russian) (**53** #10301)
**Fedorov, V. V.** On the question of the stability of a linear programming problem. (Russian) (**53** #15344)
**Gonzalez, Roberto** (*with* Rofman, Edmundo) An algorithm to obtain the maximum solution of the Hamilton-Jacobi equation. (**58** #12621)
**Lévine, Pierre** (*with* Pomerol, Jean-Charles) Programmation dans les espaces vectoriels topologiques. (**48** #894)
**Meerov, M. V.** (*with* Berščanskiĭ, Ja. M.) Optimization of linear multiply-connected dynamic systems. I. (**57** #9081a)
(*with* Berščanskiĭ, Ja. M.) Optimization of linear multiply-connected dynamic systems. II. (**57** #9081b)
**Pomerol, Jean-Charles** *See* **Lévine, Pierre**, (**48** #894)
**Povilaitis, S.** (*with* Zeöld, L.) Computational aspects of the linear time-optimal control problem. (**56** #10005)
**Rofman, Edmundo** *See* **Gonzalez, Roberto**, (**58** #12621)
**Sobolev, I. V.** *See* **Bravyĭ, M. Ja.**, (**53** #10301)
**Zeöld, L.** *See* **Povilaitis, S.**, (**56** #10005)

## 49D40 Methods of quadratic programming type

**Īvanov, V. V.** (*with* Kijaško, G. A.) The problem of the minimization of a nonconvex quadratic function in an *n*-dimensional cube, and algorithms for its solution. (Russian) **52** #4083
**Kijaško, G. A.** *See* **Īvanov, V. V.**, **52** #4083
**Menaldi, José-Luis** (*with* Rofman, Edmundo) Il metodo di collocazione nei problemi di controllo ottimo. (English summary) **56** #6523
**Rofman, Edmundo** *See* **Menaldi, José-Luis**, **56** #6523
**Rupp, Russell D.** Application of the epsilon method and the method of multipliers to a non-linear optimal control problem. **53** #14281
**Šmyrev, V. I.** The algorithms of the method of successive improvement for quadratic programming. (Russian) **49** #6001
**Vološin, V. V.** The method of successive approximations for optimal control problems. (Russian) **52** #1480a
The synthesis of optimal controls for linear inhomogeneous systems in the problem of minimizing a quadratic functional. (Russian) **52** #1480b

Secondary classifications:

**Oettli, Karl Werner** Solving optimization problems with many constraints by a sequence of subproblems containing only two constraints. (**55** #7393)
**Pagan, Adrian** Optimal control of econometric models with autocorrelated disturbance terms. (**53** #4927)
**Scott, Peter D.** A quadratic programming dual algorithm for minimax control. (**55** #7394)

## 49D45 Methods of convex programming type

**Auslender, Alfred** (*with* Dang Tran Dac) Méthodes de descente et analyse convexe. **56** #16499
**Babkin, A. G.** (*with* Kirin, N. E.) Control synthesis based on iterative methods. **53** #1373
**Barbieri, Francesco** Funzioni convesse e un teorema di minimax. **54** #3553
**Barbu, Viorel** (*with* Precupanu, Teodor) ★Convexity and optimization in Banach spaces. **58** #23939
**Beĭko, I. V.** (*with* Beĭko, M. F.) Convex approximation of a controlled process, and a method for the construction of generalized optimal regimes. (Russian) **50** #10973
**Beĭko, M. F.** *See* **Beĭko, I. V.**, **50** #10973
**Berščanskiĭ, Ja. M.** An iteration method for the solution of optimization problems. (Russian) **56** #9417
**Boĭčuk, L. M.** A differential descent method for the solution of convex programming problems that uses the principle of functional control. (Russian. English summary insert) **56** #3721
**Bulavskiĭ, V. A.** Finite-dimensional approximation in certain convex problems. (Russian) **48** #9513
The solution of nonlinear inequalities and extremal problems by methods of increased accuracy. (Russian) **48** #9514
**Craven, B. D.** (*with* Mond, Bertram) A Fritz John theorem in complex space. **47** #7566
**Crouzeix, Jean-Pierre** Polaires quasi-convexed et dualité. **51** #1555
**Dang Tran Dac** *See* **Auslender, Alfred**, **56** #16499
**Dem′janov, V. F.** *See* **Mitchell, B. F.; et al.**, **48** #9516
**Elster, Karl-Heinz** (*with* Nehse, Reinhard) Zur Theorie der Polarfunktionale. (English and Russian summaries) **50** #1088
**Goldstein, Allen** (*with* Tapia, Richard A.) Kantorovich estimates for some convex programs. **48** #1004
**Gorohovik, V. V.** (*with* Kirillova, F. M.) The scalarization of problems of vector optimization. (Russian) **58** #7329
**Janin, Robert** Sensitivity for non convex optimization problems. **57** #17468
**Kaplan, A. A.** Some applications of mathematical programming to problems of mathematical physics. (Russian) **50** #5587
**Kirievskiĭ, L. A.** (*with* Poljak, R. A.) The acceleration of the convergence of convex programming methods. (Russian) **48** #1005
**Kirillova, F. M.** *See* **Gorohovik, V. V.**, **58** #7329
**Kirin, N. E.** *See* **Babkin, A. G.**, **53** #1373

**Korobočkin, B. I.** Generalized Lagrange functions, and some of their properties. (Russian) **49** #7886
**Kushimoto, Shigeru** Converse duality theorem for pseudo-convex programming in complex space. **50** #3076
**Laurent, Pierre-Jean** Exchange algorithm in convex analysis. **48** #9515
**Lemaréchal, Claude** Sur les méthodes de gradient conjugué appliquées aux critères non différentiables. **51** #1556
**Malanowski, Kazimierz** A convex programming method in Hilbert space and its applications to optimal control of systems described by parabolic equations. **56** #6524
**Malozemov, V. N.** *See* **Mitchell, B. F.; et al., 48** #9516
**Martinet, Bernard** Perturbation des méthodes d'optimisation. Applications. (English summary) **58** #7330
**Mitchell, B. F.** (*with* Dem′janov, V. F.; Malozemov, V. N.) Finding the point of a polyhedron closest to the origin. **48** #9516
**Mond, Bertram** *See* **Craven, B. D., 47** #7566
**Nehse, Reinhard** *See* **Elster, Karl-Heinz, 50** #1088
**Oelschlägel, Dieter** Zur Existenz von Lösungen parameterabhängiger konvexer Optimierungsprobleme. **51** #11249
**Podinovskiĭ, V. V.** Application of the maximization procedure for the fundamental local criterion for the solution of problems of the theory of vector optimization. (Russian) (See RŽ Mat **1971** #6 V482)
**Poljak, R. A.** *See* **Kirievskiĭ, L. A., 48** #1005
**Precupanu, Teodor** *See* **Barbu, Viorel, 58** #23939
**Rockafellar, R. Tyrrell** Convex functions and duality in optimization problems and dynamics. **48** #13258
**Šepilov, M. A.** Continuous analogues of the penalty method for a convex programming problem. (Russian) **57** #13649
**Tapia, Richard A.** *See* **Goldstein, Allen, 48** #1004
**Ter-Krikorov, A. M.** Convex programming in a space conjugate to a Banach space, and convex optimal control problems with phase constraints. (Russian) **58** #12634
**Tynjanskiĭ, N. T.** Duality of optimization problems in Euclidean spaces. (Russian) **47** #932

Secondary classifications:

**Antipin, A. S.** A method for finding a saddle point of a modified Lagrange function. (Russian) (**56** #7988)
**Bittner, Leonhard** A remark concerning Hahn-Banach's extension theorem and the quasilinearization of convex functionals. (**47** #2308)
**Kul′čickiĭ, O. Ju.** A non-gradient random search method for an extremum in a Hilbert space. (**48** #12829)
**Mikami, Toru** An iterative computing method for solving time-optimal control problems. (**51** #9485)
**Rockafellar, R. Tyrrell** Monotone operators and the proximal point algorithm. (**53** #14232)
**Šepilov, M. A.** The generalized gradient method for extremal problems. (Russian) (**53** #15367)

### 49D99 None of the above, but in this section

**Abad, Prakash** (*with* Sweeney, Dennis J.) An iteractive algorithm for optimal control of a system with multiple criteria. **56** #3722
**Al′ber, Ja. I.** A minimization method for degenerate functionals. (Russian) **56** #13068
**Alekseev, O. G.** Use of the principle of invariant imbedding in solving an optimal control problem. **58** #2566
**Aliev, N. Z.** The method of variations in the space of phase variables. (Russian) **50** #5588
**Aliferov, V. V.** *See* **Kir′jan, S. V., 56** #3724
**Allwright, J. C.** Contraction-mapping algorithm with guaranteed convergence. **56** #9418
**Anderson, B. D. O.** (*with* Moore, John B.) Linear system optimisation with prescribed degree of stability. **47** #2471
**Bagirova, N. H.** Asymptotic behavior of the solution of a certain variational problem that contains a small parameter. (Russian. Azerbaijani summary) **56** #9419
**Barbašina, E. E.** Computation of the optimal control in a certain nonsmooth optimization problem. (Russian) **56** #13069
**Beĭko, I. V.** (*with* Gnatjuk, V. O.; Moĭko, V. V.) ★К решению выпуклой задачи аппроксимации в линейном нормированном пространстве. (Russian) [On the solution of a convex approximation problem in a normed linear space] **58** #23940
**Bensoussan, A.** (*with* Glowinski, Roland; Lions, Jacques-Louis) Méthode de décomposition appliquée au contrôle optimal de systèmes distribués. **56** #3723
**Beresnev, V. V.** The minimization of the decision function of a parametric minimization problem. (Russian. English summary insert) **56** #13070
**Blaquière, Augustin** Commande optimale d'un systéme avec trajectoires noncontinues. (English summary) **54** #5944
**Burim, V. M.** *See* **Pavljuk, Ī. A., 56** #13073
**Choudhury, A. K.** *See* **Roy, B. C., 47** #9397 (E **48** #12202)
**Connor, M. A.** Optimal control of nonlinear time-lag systems. (French, German and Russian summaries) **49** #9714
**Cruceanu, Ştefan** Sur une méthode de régularisation pour le problème de la minimisation des fonctionnelles convexes. **47** #2472
**Dem′janov, V. F.** *See* **Vinogradova, T. K.; et al., 48** #9518
**Egorov, A. I.** (*with* Rafatov, R.) Approximate solution of a certain problem of optimal control. (Russian) **48** #1006
**Eremin, I. I.** Problems of successive programming. (Russian) **48** #2878
**Esogbue, Augustine M. O.** *See* **Morin, Thomas L., 50** #8228
**Fedorenko, R. P.** Approximate solution of variational problems with non-differentiable functionals. (Russian) **45** #3107
Approximate solution of modern variational problems. (Russian) **58** #30670
**Flaherty, Joseph E.** (*with* O'Malley, Robert E., Jr.) On the computation of singular controls. **56** #13071
**Fortin, Michel** Minimization of some non-differentiable functionals by the augmented Lagrangian method of Hestenes and Powell. **54** #5945
**Fujiyama, Nobuhiro** (*with* Watanabe, Jiro) Convergence of subdifferentials and the penalty method. **58** #12635
**Gabasov, R. F.** (*with* Kirillova, F. M.) Application of the principle of the maximum to the calculation of optimum equations of discrete systems. **45** #1642
**Gaĭvoronskiĭ, A. A.** *See* **Nurminskiĭ, E. A., 58** #23944
**Gimadutdinov, È. H.** The properties of the solutions of a certain problem of the optimal placement of points on a segment. (Russian) **48** #2879
**Glowinski, Roland** *See* **Bensoussan, A.; et al., 56** #3723
**Gnatjuk, V. O.** *See* **Beĭko, I. V.; et al., 58** #23940
**Gorohovik, V. V.** On the problem of vector optimization. **52** #15184
**Gracovetsky, Serge A.** (*with* Vidyasagar, Mathukumalli) Suboptimal control of neutral systems. **48** #4887
**Grateloup, G.** (*with* Titli, André) Two-level dynamic optimization methods. **51** #1557
**Gurin, L. S.** Certain questions of vectorial optimization. (Russian) **51** #6539
**Gurman, V. I.** (*with* Konstantinov, G. N.; Rasina, I. V.) Approximate synthesis of optimal control for discrete systems. (Russian) **58** #7331
**Hager, William W.** Rates of convergence for discrete approximations to unconstrained control problems. **58** #18058
**Hassan, S. D.** *See* **Kamel, A. A., 51** #6540
**Hatko, Andrzej** *See* **Wierzbicki, Andrzej P., 56** #6527
**Hestenes, Magnus R.** Conjugate direction methods in optimization. **58** #23941
**Hiriart-Urruty, Jean-Baptiste** Sur les cônes tangents et leurs applications en programmation non différentiable. (English summary) **58** #7322
**Horne, G.** (*with* Tracz, G. S.) Nonlinear programming and second variation schemes in constrained optimal control problems. **51** #13829
**Jadykin, A. B.** An iterative method in linear dynamic programming based on using an augmented Lagrangean function. **58** #23942
**Kamel, A. A.** (*with* Hassan, S. D.) A perturbation treatment for optimal slightly nonlinear systems with linear control and quadratic criteria. **51** #6540
**Kirillova, F. M.** *See* **Gabasov, R. F., 45** #1642
**Kir′jan, S. V.** (*with* Aliferov, V. V.) Optimal control synthesis for systems of hyperbolic type. (Russian. Loose summary) **56** #3724
**Klimkulov, Y.** A problem with constraints on the control. (Russian) **56** #13072
**Kluge, Reinhard** (*with* Langmach, Hartmut) On some problem of determination of functional parameter in partial differential equations. **58** #23943
**Koenig, Michel** *See* **Zolésio, Jean-Paul, 47** #936
**Kolmanovskiĭ, V. B.** The approximation of linear control systems with time lag. **49** #7887
Optimal control of certain weakly controllable systems. (Russian. English summary insert) **58** #2567
**Konstantinov, G. N.** *See* **Gurman, V. I.; et al., 58** #7331
**Kopeč, M. M.** Solution of a certain optimal control problem in Hilbert space by the conditional gradient method. (Ukrainian. English and Russian summaries) **47** #933
A certain control problem in Hilbert space. (Ukrainian. English and Russian summaries) **47** #934
Application of the conditional gradient method to the solution of a certain optimal control problem in Hilbert space. (Ukrainian. English and Russian summaries) **47** #935
**Kožapysov, A.** *See* **Šaršenaliev, Ž., 56** #9421
**Krée, Paul R.** Théorie et application de l'approximation linéaire optimale des processus linéaires. **47** #9396
**Kung, C. F.** *See* **O'Malley, Robert E., Jr., 54** #8405
**Langmach, Hartmut** *See* **Kluge, Reinhard, 58** #23943
**Leĭfura, V. M.** *See* **Škil′, M. Ī., 56** #13075
**Levin, G. M.** (*with* Tanaev, V. S.) Parametric decomposition of extremal problems. (Russian) **50** #8227
**Li, Pow So** *See* **Tai, Ju Wei, 55** #8937
**Lin, Jiguan G.** Three methods for dertemining Pareto-optimal solutions of multiple-objective problems. **56** #9420
**Lions, Jacques-Louis** Some topics on variational inequalities and applications. **56** #16500
*See also* **Bensoussan, A.; et al., 56** #3723
**Liskovec, O. A.** Extremal problems, and the method of regularization. (Russian) **56** #6525
**Lobyrev, A. I.** A method for successive projection along an auxiliary manifold. (Russian) **49** #7888
The minimization of a strictly convex function on an intersection of convex sets. (Russian) **49** #7889
**Malanowski, Kazimierz** Application of mathematical programming methods to the determination of the optimal control for systems that are described by heat equations. (Polish. Russian and English summaries) **49** #6002
The approximation of a certain optimal control problem for systems that are described by parabolic equations. (Polish. Russian and English summaries) **56** #13067
On discrete approximation for a class of sets of admissible control. (Polish and Russian summaries) **56** #1180
**Malozemov, V. N.** Relative ε-stationarity in discrete minimax problems. (Russian) **51** #6541
**Mårtensson, K.** A constraining hyperplane technique for state variable constrained optimal control problems. **48** #9517
**McAllister, Gregory T.** (*with* Rohde, Steve M.) A difference method for some multidimensional optimization problems. (Italian summary) **58** #2568
**Moĭko, V. V.** A generalized approximation problem, and numerical methods for solving it. (Russian. English summary) **57** #1241
*See also* **Beĭko, I. V.; et al., 58** #23940
**Moore, John B.** *See* **Anderson, B. D. O., 47** #2471

**Morgan-Sciarrino, J.** Méthode directe de recherche du point de selle d'une fonctionnelle convexe-concave et application aux problèmes variationnels elliptiques avec deux contrôles antagonistes. (English summary) **51** #11250

**Morin, Thomas L.** (*with* Esogbue, Augustine M. O.) The imbedded state space approach to reducing dimensionality in dynamic programs of higher dimensions. **50** #8228

**(Mossakovskiĭ, V. Ī.)** *See* **Mathematical methods for the computer solution of optimal control problems**, **58** #30674

**Mossino, Jacqueline** ★Une application de la dualité au contrôle optimal: contrainte portant sur le contrôle et sur l'état. **54** #8404

**Nakayama, Hirotaka** (*with* Sawaragi, Yoshikazu; Sayama, H.) On an optimization problem with min-constraints. **53** #11467

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**Sayama, H.** *See* **Nakayama, Hirotaka; et al.**, **53** #11467

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**Šoĭhet, B. A.** Estimates for approximations to the saddle point of the Lagrange functional and their applications to certain problems of mathematical physics. (Russian) **58** #18060

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**Vinogradova, T. K.** (*with* Dem'janov, V. F.; Pevnyĭ, A. B.) The directional differentiability of the maximum and maximin functions. (Russian) **48** #9518

**Voĭton, E. F.** (*with* Poljakova, L. N.) A certain class of extremal problems with coupled constraints. (Russian) **48** #7084

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**Weinstein, Alexander** (*with* Stenger, William) ★Methods of intermediate problems for eigenvalues. **57** #17469

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**Zolésio, Jean-Paul** (*with* Koenig, Michel) Localisation d'un objet de forme convexe donnée. **47** #936

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★Математические методы решения задач оптимального управления на ЭВМ. Вып. 1. (Russian) [Mathematical methods for the computer solution of optimal control problems. No. 1] **58** #30674

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Secondary classifications:

**Altman, Mieczysław** A general separation theorem for mappings, saddle-points, duality and conjugate functions. (**46** #6061)

**Arora, J. S.** (*with* Haug, Edward J., Jr.) Efficient optimal design of structures by generalized steepest descent programming. (**56** #9982)

**Auslender, Alfred** (*with* Gourgand, Michel; Guillet, André) Résolution numérique d'inégalités variationnelles. (**50** #8960)

**Baeger, Ingo** (*with* Döring, Peter; März, Roswitha) Ein Verfahren zur suboptimalen Regelung beim Tracking-Problem. (English and Russian summaries) (**54** #12286)

**Barabaš, S. B.** The stability of a certain extremal problem. (Russian) (**58** #25997)

**Barnes, Earl R.** A procedure for solving certain dual optimal control problems. (**47** #918)

A geometrically convergent algorithm for solving optimal control problems. (**47** #931)

**Bégis, Dominique** (*with* Glowinski, Roland) Application de la méthode des éléments finis à l'approximation d'un problème de domaine optimal. Méthodes de résolution des problèmes approchés. (**56** #1742)

**Berkovič, E. M.** (*with* Golubeva, A. A.) Application of quasigradient minimization methods to the numerical solution of certain inverse problems of heat conduction. (Russian) (**54** #14405)

**Brezzi, Franco** (*with* Sacchi, G.) A finite element approximation of a variational inequality related to hydraulics. (**58** #24999)

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**Bulatov, V. P.** Immersion methods in optimization problems. (Russian) (**56** #7999)

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**Gončarskiĭ, A. V.** (*with* Leonov, A. S.; Jagola, A. G.) A certain regularizing algorithm for ill-posed problems with an approximately given operator. (Russian) (**47** #2820)

**Gorlov, V. M.** A certain method of solution of minimax problems with constraints. (Russian) (**48** #3506)

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**Guillet, André** *See* **Auslender, Alfred; et al.**, (**50** #8960)

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**Kadymov, Ja. B.** (*with* Mamedov, A. I.; Zeĭnalova, È, M.) Optimal control of inhomogeneous systems with distributed parameters. (Russian. Azerbaijani and English summaries) (**56** #9990)

**Kiričenko, M. F.** (*with* Koval'skiĭ, I. P.) The control of certain nonlinear systems. (Russian) (**54** #7990)

**Kobler, H.-D.** Vergleichende Untersuchungen zu Dualitäts- und Sattelpunktaussagen für Extremalaufgaben in Vektorräumen. (**58** #26012)

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**Mikičić, Dušan J.** A certain approximate solution of the control of motion of a linear nonstationary system. (Serbo-Croatian. Russian summary) (48 #670)

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**Muhamediev, Š. A.** (*with* Nikitin, L. V.) Certain peculiarities in the realization of the method of local variations. (Russian) (56 #10001)

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**Turner, Peter R.** (*with* Huntley, E.) Variable metric methods in Hilbert space with applications to control problems. (54 #9084)

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**Hermes, Henry** High order conditions for local controllability and controlled stability. **57** #7328

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**Jakubovič, E. D.** Optimal control of a linear discrete system in the presence of a nonmeasurable perturbation. **56** #13080

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**Januševskiĭ, R. T.** A decomposition in the solution of optimal problems on the synthesis of linear multivariable control systems. (Russian) **52** #11713

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**Lando, Ju. K.** (*with* Boruhov, V. T.; Boĭko, V. K.) The minimal number of inputs and switching points of boundary value problems with control. (Russian) **52** #11715

**Lihtarnikov, A. L.** (*with* Ponomarenko, V. I.; Jakubovič, V. A.) A discrete frequency theorem for the case of Hilbert spaces of states and controls. (Russian. English summary) **55** #1200

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**Raitums, U.** Extremal problems for a second order linear elliptic equation. (Russian) **58** #30675

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**Rinaldi, Sergio** *See* **Gatto, M.; et al.**, **48** #7085

**Rootenberg, Jacob** The sensitivity of optimally designed control systems, with minimum fuel performance index. **50** #3080

**Savčenko, O. Ja.** *See* **Harlamov, P. V.; et al.**, **56** #13078

**Seidman, Thomas I.** Boundary observation and control for the heat equation. **54** #5946

**Sorine, Michel** Sur les équations de Chandrasekhar associées au problème de contrôle d'un système parabolique: un exemple avec contrôle et observation frontières. (English summary) **56** #9425

**Thomas, Y.** (*with* Barraud, Alain) Commande optimale à horizon fuyant. **50** #8229

Secondary classifications:

**Albrecht, Felix** ★Topics in control theory (A Seminar given at the Forschungsinstitut für Mathematik, ETH, in 1964). (54 #3713)

**Baitmans, M.** The marked trajectories of a quasiregular synthesis. (Russian) (53 #1365)

**Jakubovič, V. A.** The frequency theorem for the case in which the state space and the control space are Hilbert spaces, and its application in certain problems in the synthesis of optimal control. II. (Russian) (57 #13636)

**Lando, Ju. K.** Controllable integro-differential operators. (Russian) (48 #12096)

**Leitmann, G.** *See* **Saunders, K. V.**, (58 #23897)

**Michel, Philippe** Complétion de l'ensemble des trajectoires d'un système dynamique. (57 #18972)

**Muhametzjanov, I. A.** Contruction of the equations of programmed motions restricted by unilateral constraints. (Russian) (50 #2639)

**Mullis, Clifford T.** Time optimal discrete regulator gains. (51 #9901)

**Neščeret, V. I.** Synthesis of optimal control of nonlinear systems on the basis of the asymptotic optimality principle. (Russian) (58 #18026)

**Popeea, Corneliu Alexandru** Optimality and duality. (Romanian) (57 #18952)

**Saunders, K. V.** (*with* Leitmann, G.) Some geometric aspects of optimal processes. II.

Problems with state constraints. (Romanian summary) (**58** #23897)

**Semenov, V. N.** The controllability of nonlinear dynamical systems. (Russian) (**46** #3948)

**Wei, Kuang Chung** A class of controllable nonlinear systems. (**54** #4743)

### 49E10 Orientor fields (contingency equations)

**Berkovitz, Leonard D.** Existence and lower closure theorems for abstract control problems. **49** #6004

**Cesari, Lamberto** Closure theorems for orientor fields. **48** #1009

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**Halkin, Hubert** Extremal properties of biconvex contingent equations. **55** #13326

**Kaczyński, H.** (*with* Olech, Czesław) Existence of solutions of orientor fields with non-convex right-hand side. **50** #10974

**Kikuchi, Norio** On control problems for functional-differential equations. **47** #9399

**Martini, R.** A generalization of the lemma of Du Bois-Reymond. **52** #6539

**Olech, Czesław** *See* **Kaczyński, H.**, **50** #10974

**Pianigiani, Giulio** On the fundamental theory of multivalued differential equations. **58** #12638

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**Schäl, Manfred** A selection theorem for optimization problems. **49** #11357

**Shao, Wei Hua** Fundamental theory of contingent differential equations of Carathéodory type. **58** #12639

**Suárez, Rodolfo** On approximations of solutions in control systems. (Spanish) **56** #9426

Secondary classifications:

**Antosiewicz, H. A.** Set-valued mappings and differential equations. (**53** #3453)

**Bucy, Richard S.** (*with* Rodriguez-Canabal, J.) A negative definite equilibrium and its induced cone of global existence for the Riccati equation. (**47** #586)

**Clarke, Frank H.** Le principe de maximum avec un minimum d'hypothèses. (English summary) (**52** #1465)

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**Klamka, Jerzy** Relative controllability of nonlinear systems with delays in control. (**56** #11143)

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**Knowles, Gregory** On Liapunov vector measures. (**56** #573)

**Korobov, V. I.** Controllability, stability of certain nonlinear systems. (Russian) (**47** #7172)

**Levakov, A. A.** A two-point problem for indefinite integral equations. (Russian) (**50** #14099)

**Levitt, Norman** (*with* Sussmann, Héctor J.) On controllability by means of two vector fields. (**53** #6626)

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**Makeev, Ju. A.** *See* **Markin, E. A.,** (**52** #10146)

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**Musaev, Samandar** A certain sufficient condition for the existence of admissible controls for a multimensional optimal control problem (Russian. Azerbaijani and English summaries) (**54** #13674)

**Petrov, N. N.** Local controllability. (Russian) (**58** #13210)

**Rebhuhn, Deborah** On the set of attainability of nonlinear autonomous control systems. (**55** #4267)

**Reghiş, Mircea** (*with* Hiriş, Viorel) Contrôlabilité complète des équations différentielles linéaires dans les espaces de Hilbert. (**48** #4446)

**Russell, David L.** Decay rates for weakly damped systems in Hilbert space obtained with control-theoretic methods. (**54** #13248)

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**Sticht, D. J.** (*with* Vincent, Thomas L.; Schultz, D. G.) Sufficiency theorems for target capture. (**53** #7563)

**Sussmann, Héctor J.** On the number of directions needed to achieve controllability. (**55** #4268)

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**Yosida, Setuzô** Augmentation of control system and its influence on controllability and optimality. (**56** #11222)

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**Meĭlahs, A. M.** Stabilization in the presence of constraints. (Russian. English summary) **52** #1492

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**Moldabaev, S. M.** The optimal stabilization of the equilibrium position of systems. (Russian. Kazakh summary) **56** #9436

**Molinari, Brian P.** The stable regulator problem and its inverse. **56** #6529

**Mova, V. V.** (*with* Ponomarenko, L. A.) An iteration method for the determination of the optimal control of systems described by finite Markov chains. (Russian) (See RŽMat **1974** #6 V77; MR **57** #17740)

**Nečitaĭlo, A. V.** Conditions for the absolute convergence of controllable systems in a nonlinearity class with a condition on the derivative. (Russian) **54** #13691

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**Pearson, J. Boyd, Jr.** (*with* Staats, Prestion W., Jr.) Robust controllers for linear regulators. **56** #6530

**Pelevina, A. F.** *See* **Gromova, P. S., 56** #16502

**Plohov, A. G.** The existence of an optimal control in the problem of extremal stabilization. (Russian) **57** #3954

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**Popov, V. M.** Hyperstability of automatic systems with several non-linear elements. **51** #1561

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**Pritchard, Anthony J.** Stability and stabilization of second-order systems. **52** #1493

**Rockafellar, R. Tyrrell** Saddle points of Hamiltonian systems in convex problems of Lagrange. **50** #10977

**Roĭtenberg, E. Ja.** The theory of stability and the problem of observability of nonlinear dynamical systems. (Russian) **57** #1246

**Russell, David L.** A singular point problem arising in control theory. **54** #1059

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**Sirazetdinov, T. K.** (*with* Semenov, P. K.) The stability of processes with distributed parameters with lag. (Russian) **56** #13092

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**Szocińska, Ewa** The stability of certain continuous systems with retarded argument. (Polish. Russian and English summaries) **56** #9437

**Talpalaru, Pavel** On finite-time stability of difference systems. (Romanian summary) **54** #13692

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**Venkateš, Ja. V.** New Lyapunov functions for stability analysis. **52** #9055

**Wang, Tan Chih** (*with* Stepanov, S. Ja.) Stabilization of controlled motions on a finite time interval. (Russian) **52** #4090

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**Baĭramov, F. D.** The practical stability of systems with distributed parameters under constantly acting perturbations. (Russian) (**50** #746)

**Bergmann, Joachim** (*with* Nolte, Klaus) Zur Konvergenz des Algorithmus von Krylow und Černous'ko. I. (English and Russian summaries) (**56** #16498)

**Byrne, Roxanne Mary** (*with* Wall, Edward T.) Formulation of a definite class of Lyapunov functions. (**56** #4981)

**Gabelaja, A. G.** A single approach to problems of controllability and stabilizability of linear autonomous systems. (Russian. Georgian and English summaries) (**57** #7305)

**Garaščenko, F. G.** The stabilization of motions under bounded perturbations. (Russian) (**54** #652)

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**Peyser, Gideon** Stability of symmetric hyperbolic systems with nonlinear feedback. (**52** #1031)

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**Lukes, Dahlard L.** Global controllability of disturbed nonlinear equations. **51** #11257

**Muntean, Ioan** On the controllability of certain nonlinear equations. (Romanian summary) **53** #1375

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**Freedman, Marvin I.** (*with* Kaplan, James L.) Singular perturbations of two-point boundary value problems arising in optimal control. (**53** #6037)

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**Jamshidi, Mohammad** A three-stage design of non-linear control systems with time-delay. (**53** #5098)

**Kaplan, James L.** *See* **Freedman, Marvin I.**, (**53** #6037)

**O'Malley, Robert E., Jr.** The nearly singular linear regulator problem. (**57** #1228)

**Schwarzkopf, A. B.** Controllability and tenability of nonlinear systems with state equality constraints. (**51** #13821)

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**Aščepkov, L. T.** The optimality of singular controls in systems with lag. (Russian) **50** #3087

**Belea, C.** (*with* Tătar, D.) Nonlinear optimal synthesis of certain automatic control systems with linear objects. (Romanian. French summary) **48** #7091

**Brunovský, Pavol** (*with* Mirică, Ştefan) Classical and Filippov solutions of the differential equation defined by the time-optimal feedback control. **51** #13834

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**Gerbier, Yves** Sur la commande en temps minimum du système $\dot{x}(t)=A(t)x(t)+g(t,u)$. (Loose English summary) **51** #1563
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**Inoue, Koichi** (*with* Akashi, Hajime; Ogino, Katsuya; Sawaragi, Yoshikazu) Sensitivity approaches to optimization of linear systems with time delay. (French, German and Russian summaries) **47** #9402
**Kazakov, A. K.** Determination of the domain of controllability for a second order nonlinear equation. (Russian. English summary) **50** #8236
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**Albrecht, Felix** (*with* Gatzke, Harry; Haddad, Abraham; Wax, Nelson) On the control of certain interacting populations. (**53** #5042)
**Fuller, A. T.** Optimal and sub-optimal saturating control of plants containing lags. (**50** #4011)
**Gatzke, Harry** *See* **Albrecht, Felix; et al.**, (**53** #5042)
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**Januševskiĭ, R. T.** Factorization of one class of matrices in synthesizing multiconnected systems with delay. (**56** #9945)
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**Zavališčin, S. T.** (*with* Sesekin, A. N.) Singular solutions in optimization problems for dynamical systems with a quadratic quality test. (Russian) **56** #13096
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**Brooks, Richard A.** Linear stochastic control: An extended separation principle. (**47** #4096)
**Burkin, I. M.** (*with* Jakubovič, V. A.) Frequency conditions for the existence of two almost periodic solutions of a nonlinear automatic control system. (Russian) (**53** #3424)
**Cole, Jon K.** A note on a selector theorem in Banach spaces. (**46** #2446)
**Gičev, Todor R.** The correctness of an optimal control problem with an integral quadratic efficiency criterion. (Russian. Bulgarian and English summaries) (**57** #13620)
**Göpfert, Alfred** ★Mathematische Optimierung in allgemeinen Vektorräumen. (See Zbl **286** #90049)
**Himmelberg, C. J.** (*with* VanVleck, F. S.) Extreme points of multifunctions. (**46** #9288)
**Jakubovič, V. A.** *See* **Burkin, I. M.**, (**53** #3424)
**Kopeĭkina, T. B.** (*with* Muljarčik, V. V.) The observability and identifiability of systems with lag. (Russian) (**49** #8700)
**Korobov, V. I.** (*with* Lucenko, A. V.; Podol′skiĭ, E. N.) Stabilization of a linear autonomous system with respect to a subspace. II. (Russian) (**58** #20696)
**Krotov, V. F.** Computational algorithms for solving and optimizing controllable systems of equations. I. (See Zbl **316** #65009)
Computational algorithms for solving and optimizing controllable systems of equations. II. (See Zbl **339** #65040)
**Lando, Ju. K.** Controllable operators. (Russian) (**49** #5880)
**Lucenko, A. V.** *See* **Korobov, V. I.; et al.**, (**58** #20696)
**Muljarčik, V. V.** *See* **Kopeĭkina, T. B.**, (**49** #8700)
**Musa, Samuel A.** *See* **Srivastava, Sushanta**, (**47** #7174)
**Nikonov, O. I.** The combination of control and observation processes in problems of game deviation of motion. (Russian) (**56** #14883)
**Podol′skiĭ, E. N.** *See* **Korobov, V. I.; et al.**, (**58** #20696)
**Srivastava, Sushanta** (*with* Musa, Samuel A.) Generation of Liapunov functions using auxiliary invariant systems. (**47** #7174)
**Urbánszki, Ferenc** Estimate concerning the domain of synthesis of a second order linear time-optimal process. (Hungarian. Russian summary) (**56** #11275)
**VanVleck, F. S.** *See* **Himmelberg, C. J.**, (**46** #9288)

### 49Fxx Manifolds

**(Bombieri, Enrico)** *See* **Geometric measure theory and minimal surfaces, 49** #11361
**Centro Internazionale Mathematico Estivo (C.I.M.E.)** *See* **Geometric measure theory and minimal surfaces, 49** #11361
**Geometric measure theory and minimal surfaces** ★Geometric measure theory and minimal surfaces. **49** #11361
**Minimal surfaces** *See* **Geometric measure theory and minimal surfaces, 49** #11361

Secondary classifications:

**Hermann, Robert** ★Geometric structure of systems-control theory and physics. Part B. (**58** #33269)

★Differential geometry and the calculus of variations. (**58** #13105)

## 49F05 Exterior differential forms, invariant integrals (Cartan theory) [See also 58A15.]

**Cartan, Élie** ★Leçons sur les invariants intégraux. **50** #8238
**Losco, Lucette** Sur une application des invariants intégraux au problème des *n* corps. **48** #12946
**Rund, Hanno** An integral invariant associated with the geodesic field theory of Weyl in the calculus of variations of multiple integrals. **52** #6545
**Segre, Beniamino** Generalizzazione di un procedimento di Levi-Civita atto a costruire soluzioni particolari di sistemi differenziali. (English summary) **52** #11719

Secondary classifications:

**Dumkin, V. V.** *See* **Graĭfer, L. B.; et al.**, (**45** #5913)
**Graĭfer, L. B.** (*with* Gusman, S. Ja.; Dumkin, V. V.) An extremal problem for forms with singularities on Riemannian manifolds. (Russian) (**45** #5913)
**Gusman, S. Ja.** *See* **Graĭfer, L. B.; et al.**, (**45** #5913)
**Kijowski, Jerzy** Multiphase spaces and gauge in the calculus of variations. (Russian summary) (**51** #6879)
**Kolář, Ivan** Affine differential operators and the Hamilton formalism. (Czech and Russian summaries) (**53** #6625)
**Krupka, Demeter** A map associated to the Lepagian forms on the calculus of variations in fibred manifolds. (**55** #4273)
**Lovelock, David** (*with* Rund, Hanno) ★Tensor, differential forms, and variational principles. (**57** #13703)
**Makai, I.** Zur Theorie der Lagrange-Funktionen. (**46** #2580)
**Ouzilou, René** Expression symplectique des problèmes variationnels. (**52** #6782)
**Rund, Hanno** *See* **Lovelock, David**, (**57** #13703)

## 49F10 Minimal surfaces

**de Acutis, Mimma** Superfici non parametriche a curvatura media assegnata con ostacoli. (English summary) **58** #12646
**Alexander, Herbert** (*with* Osserman, Robert) Area bounds for various classes of surfaces. **52** #1495
**Alt, Hans Wilhelm** Die Existenz einer Minimalfläche mit freiem Rand vorgeschriebener Länge. **49** #1302
  Verzweigungspunkte von $H$-Flächen. II. **48** #9529
**Aminov, Ju. A.** On the problem of the stability of a minimal surface in a Riemannian space of positive curvature. (Russian) **53** #1378
**Bamberger, Yves** Surfaces minima avec obstacles. **46** #8015
**Böhme, Reinhold** (*with* Tomi, Friedrich) Zur Struktur der Lösungsmenge des Plateauproblems. **49** #11362
  Die Zusammenhangskomponenten der Lösungen analytischer Plateauprobleme. **49** #11363
  Die Jacobifelder zu Minimalflächen im $\mathbf{R}^3$. (English summary) **51** #13836
**Bombieri, Enrico** (*with* Giusti, Enrico) Local estimates for the gradient of non-parametric surfaces of prescribed mean curvature. **49** #9716
  Variational problems and elliptic equations. **54** #13693
**Borgato, Maria Teresa** Sulla classe dei moltiplicatori di BV($U$). (English summary) **55** #8945
**Burago, Ju. D.** A remark on isoperimetric inequalities on two-dimensional surfaces. (Russian) **48** #9530
**Colombini, Ferruccio** *See* **De Giorgi, Ennio; et al.**, **58** #12647
**Concus, Paul** (*with* Finn, Robert) On the height of a capillary surface. **53** #3841
**De Giorgi, Ennio** (*with* Colombini, Ferruccio; Piccinini, Livio C.) ★Frontiere orientate di misura minima e questioni collegate. **58** #12647
**Finn, Robert** *See* **Concus, Paul**, **53** #3841
**Fomenko, A. T.** Minimal compacta in Riemannian manifolds, and a conjecture of Reifenberg. (Russian) **48** #12223
  Geometric variational problems. (Russian) **54** #3560
**Gerhardt, Claus** Hypersurfaces of prescribed mean curvature over obstacles. **48** #2880
  On the exterior capillarity problem. **50** #1092
  On the capillarity problem with constant volume. **52** #11720
**Giaquinta, Mariano** (*with* Pepe, Luigi) Esistenza e regolarità per il problema dell'area minima con ostacoli in *n* variabili. **46** #4335
  Sul problema di Dirichlet per le superfici a curvatura media assegnata. **54** #8414
  (*with* Souček, Jiří) Esistenza per il problema dell'area e controesempio di Bernstein. (English summary) **51** #11259
  (*with* Modica, G.) Regolarità Lipschitziana per la soluzione di alcuni problemi di minimo con vincolo. (English summary) **56** #13097
**Giusti, Enrico** Non-parametric minimal surfaces with discontinuous and thin obstacles. **49** #11365
  Minimal surfaces with obstacles. **53** #11473
  Life and death of the Bernstein problem. **56** #13098
  Maggiorazioni a priori del gradiente, e regolarità delle superfici minime non-parametriche con ostacoli. **52** #15193
  Boundary value problems for non-parametric surfaces of prescribed mean curvature. **58** #2572
  On the equation of surfaces of prescribed mean curvature. Existence and uniqueness without boundary conditions. **58** #7337
  *See also* **Bombieri, Enrico**, **49** #9716
**Gornik, Klaus** Ein Differenzierbarkeitssatz für Lösungen zweidimensionaler Variationsprobleme mit "zweischaligem Hindernis". **56** #1184
**Gulliver, Robert D., II** (*with* Spruck, Joel) The Plateau problem for surfaces of prescribed mean curvature in a cylinder. **45** #7567
  (*with* Spruck, Joel) Existence theorems for parametric surfaces of prescribed mean curvature. **46** #8016
  (*with* Lesley, Frank David) On boundary branch points of minimizing surfaces. **49** #11366
  Existence of surfaces with prescribed mean curvature vector. **49** #1303
  On the nonexistence of a hypersurface of prescribed mean curvature with a given boundary. **48** #7092
  (*with* Spruck, Joel) On embedded minimal surfaces. **53** #9011
**Harth, Fritz Peter** Zur Regularitä von $H$-Flächen mit freiem Rand. **54** #5950
**Harvey, Reese** (*with* Lawson, B.) Extending minimal varieties. **51** #6546
**Hildebrandt, Stéfan** Some recent contributions to Plateau's problem. **50** #8239
  Regularity of solutions of variational problems with obstacles and volume constraints. **52** #9056
**Iannelli, Mimmo** (*with* Vergara Caffarelli, Giorgio) On the boundary value problem and the related evolution problem for surfaces of prescribed mean curvature. **52** #9057
**Jouron, Claude** Sur l'approximation des solutions généralisées du problème des surfaces minimales. **49** #7892
**Kenmotsu, Katsuei** On minimal immersions of $R^2$ into $S^N$. **53** #9012
**Kinderlehrer, David** The analyticity of the coincidence set in variational inequalities. **53** #14287
  The regularity of the solution to a certain variational inequality. **52** #9058
  Some questions related to the coincidence set in variational inequalities. **58** #30680
**Lawson, B.** *See* **Harvey, Reese**, **51** #6546
**Lawson, H. Blaine, Jr.** The equivariant Plateau problem and interior regularity. **46** #8017
  Minimal varieties. **52** #1496
**Leichtweiss, Kurt** Minimalflächen im Großen. **52** #15194
**Lesley, Frank David** *See* **Gulliver, Robert D., II**, **49** #11366
**Lichnewsky, Alain** Principe du maximum local et solutions généralisées de problèmes du type hypersurfaces minimales. **51** #1566
  Sur le comportement au bord des solutions généralisées du problème des surfaces minimales. **50** #5595
  Sur le comportement au bord des solutions généralisées du problème des surfaces minimales; "vraies solutions". **50** #10979
  (*with* Temam, Roger) Surfaces minimales d'évolution: le concept de pseudo-solution. (English summary) **55** #6285
**Massari, Umberto** (*with* Pepe, Luigi) Su di una formulazione variazionale del problema dei capillari in assenza di gravità. (English summary) **56** #1185
  (*with* Pepe, Luigi) Successioni convergenti di ipersuperfici di curvatura media assegnata. **54** #8415
  (*with* Pepe, Luigi) Sulla curvatura di Gauss delle superfici dei capillari. **54** #8416
  Problema di Dirichlet per l'equazione delle superfici di curvatura media assegnata con dato infinito. (English summary) **58** #2573
**Mazzone, Silvia** Un problema di disequazioni variazionali per superficie di curvatura media assegnata. (English summary) **47** #4109
**McAllister, Gregory T.** (*with* Rohde, Steve M.) An optimization problem in hydrodynamic lubrication theory. **57** #17471
**Michael, J. H.** (*with* Simon, Leon) Sobolev and mean-value inequalities on generalized submanifolds of $R^n$. **49** #9717
**Miranda, Mario** Nouveaux résultats pour les hypersurfaces minimales. **58** #23951
  Frontiere minimali con ostacoli. (French summary) **46** #773
  Un principio di massimo forte per le frontiere minimali e una sua applicazione alla risoluzione del problema al contorno per l'equazione delle superfici di area minima. **46** #2527
  Boundaries of Caccioppoli sets in the calculus of variations. **53** #11474
  Existence and regularity of hypersurfaces of $R^n$ with prescribed mean curvature. **49** #1304
  Sulle singolarità eliminabili delle soluzioni dell'equazione delle superficie minime. **55** #6286
  Superficie minime illimitate. **58** #18063
**Modica, G.** *See* **Giaquinta, Mariano**, **56** #13097
**Morgan, Frank** A smooth curve in $R^4$ bounding a continuum of area minimizing surfaces. **54** #3561
  Almost every curve in $\mathbf{R}^3$ bounds a unique area minimizing surface. **58** #23952
**Morice, Ph.** Une méthode d'optimisation de forme de domaine. Application à l'écoulement stationnaire à travers une digue poreuse. **53** #11476
**Moschen, Maria Pia** Principio di massimo forte per le frontiere di misura minima. (English summary) **58** #2574
**Nagano, Tadashi** (*with* Smyth, Brian) Sur les surfaces minimales hyperelliptiques dans un tore. (English summary) **52** #1497
**Nitsche, Johannes C. C.** On the boundary regularity of surfaces of least area in Euclidean space. **52** #15195
  A new uniqueness theorem for minimal surfaces. **49** #6008
  Local uniqueness for Plateau's problem. **52** #9059
  ★Vorlesungen über Minimalflächen. **56** #6533
**Osserman, Robert** Branched immersions of surfaces. **50** #10980
  Variations on a theme of Plateau. **55** #13329
  Isoperimetric and related inequalitites. **52** #6546
  (*with* Schiffer, Menahem M.) Doubly-connected minimal surfaces. **52** #6547
  *See also* **Alexander, Herbert**, **52** #1495
**Parks, Harold R.** A method for computing non-parametric area minimizing surfaces over *n*-dimensional domains, together with a priori error estimates. **58** #7338
**Pepe, Luigi** Analiticità delle superfici di equilibrio dei capillari in ogni dimensione. **56** #1186
  *See also* **Giaquinta, Mariano**, **46** #4335; **Massari, Umberto**, **54** #8415; **Massari, Umberto**, **54** #8416 *and* **Massari, Umberto**, **56** #1185
**Piccinini, Livio C.** De Giorgi's measure and thin obstacles. **53** #11475
  *See also* **De Giorgi, Ennio; et al.**, **58** #12647
**Pitts, Jon T.** Existence and regularity of minimal surfaces on Riemannian manifolds. **53** #9013

**Radó, Tibor** ★On the problem of Plateau. **49** #9718

**Rohde, Steve M.** *See* **McAllister, Gregory T., 57** #17471

**Schiffer, Menahem M.** *See* **Osserman, Robert, 52** #6547

**Simoes, Plinio** On a class of minimal cones in $\mathbf{R}^n$. **48** #9531

**Simon, Leon** Boundary regularity for solutions of the non-parametric least area problem. **58** #30681

(*with* Spruck, Joel) Existence and regularity of a capillary surface with prescribed contact angle. **58** #7339

On some extensions of Bernstein's theorem. **56** #6534

Equations of mean curvature type in 2 independent variables. **56** #13099

*See also* **Michael, J. H., 49** #9717

**Smyth, Brian** *See* **Nagano, Tadashi, 52** #1497

**Souček, Jiří** *See* **Giaquinta, Mariano, 51** #11259

**Souček, Vladimír** The nonexistence of a weak solution of Dirichlet's problem for the functional of minimal surface on nonconvex domains. **45** #5845

**Spruck, Joel** Remarks on the stability of minimal submanifolds of $\mathbf{R}^n$. **51** #13837

*See also* **Gulliver, Robert D., II, 45** #7567; **Gulliver, Robert D., II, 46** #8016; **Gulliver, Robert D., II, 53** #9011 *and* **Simon, Leon, 58** #7339

**Steffen, Klaus** Isoperimetric inequalities and the problem of Plateau. **54** #5951

On the existence of surfaces with prescribed mean curvature and boundary. **52** #15196

**Taylor, Jean E.** The structure of singularities in area-related variational problems with constraints. **52** #9060

**Temam, Roger** Solutions généralisées de certaines équations du type hypersurfaces minima. **49** #3647

*See also* **Lichnewsky, Alain, 55** #6285

**Titov, O. V.** Minimal hypersurfaces that are stretched over soft obstructions. (Russian) **50** #1093

Minimal hypersurfaces over soft obstacles. (Russian) **50** #1094

**Tomi, Friedrich** On the local uniqueness of the problem of least area. **49** #11364

A perturbation theorem for surfaces of constant mean curvature. **51** #1564

*See also* **Böhme, Reinhold, 49** #11362

**Ural′ceva, N. N.** The solvability of the capillarity problem. (Russian. English summary) **58** #30682

The solvability of the capillarity problem. II. (Russian. English summary) **58** #30683

**Vekua, I. N.** A certain functional equation of minimal surface theory. (Russian) **52** #4091

**Vergara Caffarelli, Giorgio** Disequazioni variazionali per due superfici di curvatura media costante. (English summary) **51** #1565

*See also* **Iannelli, Mimmo, 52** #9057

**Yoon, Byung Ho** On the approximation of a minimal surface. **54** #5952

Secondary classifications:

**Alt, Hans Wilhelm** Verzweigungspunkte von *H*-Flächen. I. (**47** #965b)

**Aminov, Ju. A.** The instability of a minimal surface in an *n*-dimensional Riemannian space of positive curvature. (Russian) (**55** #11175)

**Bandle, Catherine** Extensions of an inequality by Pólya and Schiffer for vibrating membranes. (**47** #4112)

**Barbosa, João Lucas Marquês** (*with* do Carmo, Manfredo Perdigão) On the size of a stable minimal surface in $R^3$. (**54** #1292)

**Beckenbach, Edwin F.** (*with* Eng, F. H.; Tafel, R. E.) Global properties of rational and logarithmico-rational minimal surfaces. (**50** #8317)

**Beeson, Michael J.** The behavior of a minimal surface in a corner. (**56** #6714)

Non-continuous dependence of surfaces of least area on the boundary curve. (**57** #13708)

**Böhme, Reinhold** Stability of minimal surfaces. (**58** #24032a)

(*with* Tromba, Anthony J.) The number of solutions to the classical plateau problem is generically finite. (**57** #1290)

Über Stabilität und Isoliertheit der Lösungen des klassischen Plateauproblems. (**58** #24032b)

**Bombieri, Enrico** Variational problems and elliptic equations. (**58** #23008)

**Brothers, John E.** Behavior at the boundary of a solution to Plateau's problem. (**47** #4111)

**Caffarelli, Luis A.** The regularity of free boundaries in higher dimensions. (**56** #12601)

(*with* Rivière, Néstor M.) Asymptotic behaviour of free boundaries at their singular points. (**57** #3634)

**Cambini, Alberto** Sul lemma di M. Morse. (English summary) (**47** #4287)

**Carey, Graham F.** Variational principles for the transonic airfoil problem. (**58** #14321)

**do Carmo, Manfredo Perdigão** (*with* Nowosad, P.) Stability of minimal hypersurfaces. (**54** #6006)

*See also* **Barbosa, João Lucas Marquês, (54** #1292)

**Cooper, Frances** A Harnack inequality for degenerate elliptic equations on minimal surfaces. (**53** #6085)

**Dedecker, Paul** Généralisation d'une formule de H. A. Schwarz relative aux surfaces minima. (English summary) (**55** #13484)

**De Giorgi, Ennio** Introduction to minimal-surface theory. (**55** #11138)

**Eng, F. H.** *See* **Beckenbach, Edwin F.; et al., (50** #8317)

**Feinberg, Jerry M.** The isoperimetric inequality for doubly-connected minimal surfaces in $\mathbf{R}^n$. (**57** #1291)

**Finn, Robert** Capillarity phenomena. (Russian) (**58** #3951)

(*with* Giusti, Enrico) On nonparametric surfaces of constant mean curvature. (**55** #4058)

**Gackstatter, Fritz** Methoden der Wertvertverteilungslehre bei Minimalflächen im $\mathbf{R}^3$. (English summary) (**48** #6420 (EA **51**) )

(*with* Kunert, Rainer) Konstruktion vollständiger Minimalflächen von endlicher Gesamtkrümmung. (**56** #6573)

**Gaveau, Bernard** (*with* Mazet, Edmond) Méthode de la plus grande descente pour la construction de la solution du problème de Plateau. (English summary) (**54** #13988)

**Gerhardt, Claus** Global regularity of the solutions to the capillarity problem. (**58** #29199)

**Giusti, Enrico** Superfici cartesiane di area minima. (English summary) (**45** #1051)

Elliptic equations on minimal surfaces. (**49** #824)

On the regularity of the solution to a mixed boundary value problem for the non-homogeneous minimal surface equation. (Italian summary) (**53** #996)

*See also* **Finn, Robert, (55** #4058)

**Gluck, Herman** The generalized Minkowski problem in differential geometry in the large. (**46** #8132)

**Gulliver, Robert D., II** (*with* Spruck, Joel) Surfaces of constant mean curvature which have a simple projection. (**47** #965c)

(*with* Osserman, Robert; Royden, H. L.) A theory of branched immersions of surfaces. (**50** #14595)

Branched immersions of surfaces and reduction of topological type. I. (**52** #15478)

Branched immersions of surfaces and reduction of topological type. II. (**57** #4015)

**Hildebrandt, Stéfan** Maximum principles for minimal surfaces and for surfaces of continuous mean curvature. (**47** #965d)

**Hinata, Masahiro** (*with* Shimasaki, Masaaki; Kiyono, Takeshi) Numerical solution of Plateau's problem by a finite element method. (**48** #10151)

**Jouron, Claude** Résolution numérique du problème des surfaces minima. (**53** #9682)

**Kaul, Helmut** Isoperimetrische Ungleichung und Gauss-Bonnet-Formel für *H*-Flächen in Riemannschen Mannigfaltigkeiten. (**47** #965a)

Remarks on the isoperimetric inequality for multiply-connected *H*-surfaces. (**47** #965e)

**Kenmotsu, Katsuei** A characterization of bipolar minimal surfaces in $S^4$. (**50** #14436)

**Kinderlehrer, David** Variational inequalities with lower dimensional obstacles. (**46** #4129)

How a minimal surface leaves an obstacle. (**54** #8014)

**Kiyono, Takeshi** *See* **Hinata, Masahiro; et al., (48** #10151)

**Knowles, James K.** A note on the spatial decay of a minimal surface over a semi-infinite strip. (**55** #10842)

**(Kosmodem′janskiĭ, A. A.)** *See* **Finn, Robert, (58** #3951)

**Kunert, Rainer** *See* **Gackstatter, Fritz, (56** #6573)

**(Landis, E. M.)** *See* **Finn, Robert, (58** #3951)

**Leray, J.** Sul problema di Dirichlet quasi lineare del secondo ordine. (**55** #8548)

**Lesley, Frank David** Differentiability of minimal surfaces at the boundary. (**46** #9873)

**Leung, Dominic S. P.** On the integrability of Jacobi fields on minimal submanifolds. (**53** #9063)

**Lichnewsky, Alain** Sur le comportement au bord des solutions généralisées du problème non paramétrique des surfaces minimales. (**58** #23046)

**Massari, Umberto** (*with* Pepe, Luigi) Su di una impostazione parametrica del problema dei capillari. (English summary) (**52** #9805)

**Mazet, Edmond** *See* **Gaveau, Bernard, (54** #13988)

**Mazzone, Silvia** Existence and reularity of the solution of certain nonlinear variational inequalities with an obstacle. (**51** #3681)

**Mikljukov, V. M.** Two theorems on boundary properties of minimal surfaces in nonparametric form. (Russian) (**57** #13712)

**Miranda, Mario** Dirichlet problem with $L^1$ data for the non-homogeneous minimal surface equation. (**50** #5169)

**Mittelmann, Hans-Detlef** On the approximate solution of nonlinear variational inequalities. (**58** #31922)

**Nitsche, Johannes C. C.** The regularity of the trace for minimal surfaces. (**53** #6440)

**Nowosad, P.** *See* **do Carmo, Manfredo Perdigão, (54** #6006)

**Osserman, Robert** *See* **Gulliver, Robert D., II; et al., (50** #14595)

**Pepe, Luigi** *See* **Massari, Umberto, (52** #9805)

**Pini, Giorgio** L'indice topologico per le correnti piane. (English summary) (**55** #4248)

**Rannacher, Rolf** Some asymptotic error estimates for finite element approximation of minimal surfaces. (French summary) (**56** #4199)

**Reilly, Robert C.** The relative differential geometry of nonparametric hypersurfaces. (**54** #13797)

**Rivière, Néstor M.** *See* **Caffarelli, Luis A., (57** #3634)

**Roseman, Joseph J.** The rate of decay of a minimal surface defined over a semiinfinite strip. (**50** #2686)

**Royden, H. L.** *See* **Gulliver, Robert D., II; et al., (50** #14595)

**Ščerbina, G. V.** A certain boundary value problem that arises in applications. (Russian. English summary) (**56** #9114)

**Schoen, Richard** (*with* Simon, Leon; Yau, Shing Tung) Curvature estimates for minimal hypersurfaces. (**54** #11243)

**Seifert, Herbert** Minimalflächen von vorgegebener topologischer Gestalt. (**51** #1626)

**Shimasaki, Masaaki** *See* **Hinata, Masahiro; et al., (48** #10151)

**Simon, Leon** Remarks on curvature estimates for minimal hypersurfaces. (**54** #6040)

*See also* **Schoen, Richard; et al., (54** #11243)

**Souček, Jiří** (*with* Souček, Vladimír; Stará, Jana) On the nineteenth and the twentieth Hilbert problems. (Czech) (**57** #1225)

**Souček, Vladimír** *See* **Souček, Jiří; et al., (57** #1225)

**Spruck, Joel** *See* **Gulliver, Robert D., II, (47** #965c)

**Stará, Jana** *See* **Souček, Jiří; et al., (57** #1225)

**Steffen, Klaus** Ein verbesserter Existenzsatz für Flächen konstanter mittlerer Krümmung. (English summary) (**45** #1050)

**Tafel, R. E.** *See* **Beckenbach, Edwin F.; et al., (50** #8317)

**Tamanini, Italo** Il problema della capillarità su domini non regolari. (**58** #3943)

**Tomi, Friedrich** On the finite solvability of Plateau's problem. (**56** #13118)

**Tromba, Anthony J.** On the number of solutions to Plateau's problem. (**54** #6197)

The set of curves of uniqueness for Plateau's problem has a dense interior. (**56** #9581)

*See also* **Böhme, Reinhold, (57** #1290)

**Trudinger, Neil S.** On the analyticity of generalized minimal surfaces. (**46** #501)

**Vergara Caffarelli, Giorgio** Superficie con curvatura media assegnata in $L^p$. Applicazioni

ad un problema di disequazioni variazionali. (English summary) (**50** #7789)
Variational inequalities for two surfaces of constant mean curvature. (**50** #8195)
**Wagner, H.-J.** A contribution to the numerical approximation of minimal surfaces. (German summary) (**56** #17122)
Consideration of obstacles in the numerical approximation of minimal surfaces. (German summary) (**58** #3567)
**Wente, Henry C.** The Plateau problem for symmetric surfaces. (**54** #8462)
The differential equation $\Delta x = 2H(x_u \wedge x_v)$ with vanishing boundary values. (**51** #10871)
**Yau, Shing Tung** *See* **Schoen, Richard; et al.**, (**54** #11243)

### 49F15 Morse theory in Hilbert and other spaces [See also 58Exx.]

**Gawędzki, K.** Functional theory of geodesic fields and its applications to the calculus of variations of multiple integrals. **48** #4891
**Gregory, John** An approximation theory for focal points and focal intervals. **45** #5847

Secondary classifications:

**Berger, Melvyn S.** Minimax principles for the solution of semilinear gradient operator equations in Hilbert space. (**47** #9379)
**Daniljuk, Ī. Ī.** A generalized Morse theory for a certain class of functionals. (Ukrainian. English and Russian summaries) (**45** #2749)
**Ekeland, Ivar** (*with* Lasry, Jean-Michel) Sur le nombre de points critiques de fonctions invariantes par des groupes. (English summary) (**53** #9285)
**(Fife, P. C.)** *See* **Symposium: Rocky Mountain Consortium, Nonlinear Eigenvalue Problems**, (**47** #5409)
**Flaschel, P.** (*with* Klingenberg, Wilhelm) ★Riemannsche Hilbertmannigfaltigkeiten. Periodische Geodätische. Mit einem Anhang von H. Karcher. (**49** #6275)
**Geoghegan, Ross** On spaces of homeomorphisms, embeddings and functions. I. (**45** #4349)
**(Karcher, Hermann)** *See* **Flaschel, P.; et al.**, (**49** #6275)
**Klingenberg, Wilhelm** *See* **Flaschel, P.**, (**49** #6275)
**Lasry, Jean-Michel** *See* **Ekeland, Ivar**, (**53** #9285)
**Mesirov-Kazdan, Jill P.** Calculus of variations: perturbations preserving condition (C). (**52** #15552)
**Morse, Marston** Subordinate quadratic forms and their complementary forms. (**46** #7165)
Conjugate points on a limiting extremal. (**53** #9290)
**Postnikov, M. M.** ★Введение в теорию Морса. (Russian) [Introduction to Morse theory] (**47** #4288)
**Nonlinear eigenvalue problems** *See* **Symposium: Rocky Mountain Consortium, Nonlinear Eigenvalue Problems**, (**47** #5409)
**Symposium:**
**Rocky Mountain Consortium, Nonlinear Eigenvalue Problems** ★{Rocky Mountain Consortium Symposium on Nonlinear Eigenvalue Problems (Santa Fe, N.M., June–July 1971)}. (**47** #5409)

### 49F20 Geometric measure and integration theory, integral and normed currents, flat chains and cochains, varifolds [See also 58A25.]

**Allard, William K.** On the first variation of a varifold. **46** #6136
(*with* Almgren, Frederick J., Jr.) The structure of stationary one dimensional varifolds with positive density. **54** #13694
**Almgren, Frederick J., Jr.** Geometric measure theory and elliptic variational problems. **58** #23953
*See also* **Allard, William K.**, **54** #13694
**Andronikou, Anastasios** *See* **Wright, Fred M.**, **45** #9231
**Averna, Alfonso** Teoremi di convergenza per l'integrale di Fubini-Tonelli. **48** #12224
**Boni, Mauro** Sull'approssimazione dell'integrale multiplo del calcolo delle variazioni. **46** #4336
**Breckenridge, J. C.** Contributions to the theory of nonparametric Weierstrass integrals. **48** #1012
**Colombini, Ferruccio** Una definizione alternativa per una misura usata nello studio di ipersuperfici minimali. (English summary) **49** #6009
**D'Ambrosio, Ubiratan** Existence theorems in higher dimensional calculus of variations. **58** #30684
**Federer, Herbert** A minimizing property of extremal submanifolds. **52** #9063
Colloquium lectures on geometric measure theory. **57** #7330
**Fomenko, A. T.** The multidimensional Plateau problem on Riemannian manifolds. (Russian) **47** #9403
**Gariepy, Ronald** Geometric properties of Sobolev mappings. **49** #3648
**Hardt, Robert M.** Slicing and intersection theory for chains associated with real analytic varieties. **47** #4110
Uniqueness of nonparametric area minimizing currents. **56** #9441
**Kar, Samir** The (φ, 1) rectifiable subsets of Euclidean space. **58** #7340
**Komorowski, Jacek** A geometrical formulation of the general free boundary problems in the calculus of variations and the theorems of E. Noether connected with them. **45** #2550
**Lawson, H. Blaine, Jr.** (*with* Simons, James) On stable currents and their application to global problems in real and complex geometry. **48** #2881
**Paur, Sandra O.** Stokes' theorem for integral currents modulo $\nu$. **58** #2575
**Pepe, W. D.** Measures on bundles and bundles of measures. **49** #3649
**Silverman, Edward** Lower semicontinuity of parametric integrals. **46** #9842
**Simons, James** *See* **Lawson, H. Blaine, Jr.**, **48** #2881
**Wagner, Daniel H.** Integral of a set-valued function with semi-closed values. **54** #8417
**Wright, Fred M.** (*with* Andronikou, Anastasios) The Weierstrass integral in the complex plane. **45** #9231

Secondary classifications:

**Asada, Akira** Integration of Alexander-Spanier cochains. (**45** #7702)
**Cassa, Antonio** The topology of the space of positive analytic cycles. (Italian summary) (**56** #662)
**Geoghegan, Ross** On integral currents and the Dold-Thom construction. (**51** #11500)
**Hildebrand, S. K.** *See* **Milnes, Harold Willis**, (**51** #9034)
**Lawson, H. Blaine, Jr.** The question of holomorphic carriers. (**56** #8898)
**Mas-Colell, Andreu** A remark on a smoothness property of convex, complete preorders. (**53** #11495)
**Milnes, Harold Willis** (*with* Hildebrand, S. K.) A technique for finding minimal paths in subspaces of a metric space. (**51** #9034)
**Paur, Sandra O.** An estimate of the density at the boundary of an integral current modulo $v$. (**56** #13246)
**Shiffman, Bernard** Applications of geometric measure theory to value distribution theory for meromorphic maps. (**51** #13295)

### 49F22 Existence and structure of solutions to variational problems in geometric measure-theoretic setting

**Allard, William K.** On the first variation of area and generalized mean curvature. **54** #8418
(*with* Almgren, Frederick J., Jr.) An introduction to regularity theory for parametric elliptic variational problems. **52** #6548
A characterization of the area integrand. **52** #6549
Some recent advances in the multidimensional parametric calculus of variations. **55** #3932
On the first variation of a varifold: boundary behavior. **53** #1379
**Almgren, Frederick J., Jr.** Geometric measure theory and elliptic variational problems. **54** #8419
Geometric variational problems from a measure-theoretic point of view. **56** #13100
Measure theoretic geometry and elliptic variational problems. **56** #13101
The structure of limit varifolds associated with minimizing sequences of mappings. **52** #6550
Existence and regularity almost everywhere of solutions to elliptic variational problems with constraints. **50** #14438
Existence and regularity almost everywhere of solutions to elliptic variational problems with constraints. **54** #8420
*See also* **Allard, William K.**, **52** #6548 *and* **Schoen, Richard; et al.**, **57** #7333
**Berger, Melvyn S.** Two minimax problems in the calculus of variations. **49** #1305
**Berliocchi, Henri** (*with* Lasry, Jean-Michel) Intégrandes normales et mesures paramétrées en calcul des variations. **49** #9719
**Bindschadler, David** Absolutely area minimizing singular cones of arbitrary codimension. **58** #7341
**Boni, Mauro** Teoremi di approssimazione per funzionali sub-lineari su misure e applicazioni all'integrale del calcolo delle variazioni. **52** #9061
L'integrale di Weierstrass non parametrico e quasi additività. (English summary) **50** #14437
**Brothers, John E.** Behavior at the boundary of a solution to Plateau's problem. **47** #4111
The structure of solutions to Plateau's problem in the $n$-sphere. **55** #8946
Existence and structure of tangent cones at the boundary of an area minimizing integral current. **58** #7342
**Caffarelli, Luis A.** (*with* Rivière, Néstor M.) On the rectifiability of domains with finite perimeter. **53** #14288
(*with* Rivière, Néstor M.) Smoothness and analyticity of free boundaries in variational inequalities. **54** #1061
**D'Ambrosio, Ubiratan** On limit boundaries of generalized surfaces. (Italian summary) **57** #13655
**De Giorgi, Ennio** Problemi di superfici minime con ostacoli: forma non cartesiana. **48** #7093
Introduction to minimal-surface theory. **55** #11138
**Federer, Herbert** Real flat chains, cochains and variational problems. **50** #1095
**Fomenko, A. T.** The multidimensional Plateau problem in Riemannian manifolds. (Russian) **50** #1096
Multidimensional Plateau problem on Riemannian manifolds. On the problem of the algorithmical recognizability of the standard three-dimensional sphere. **54** #13695
**Giaquinta, Mariano** Regolarità delle superfici BV(Ω) con curvatura media assegnata. (English summary) **51** #13838
On the Dirichlet problem for surfaces of prescribed mean curvature. **49** #1306
**Girsanov, I. V.** ★Lectures on mathematical theory of extremum problems. **57** #3958
**Gonzalez, Eduardo H. A.** Sul problema della goccia appoggiata. **58** #12648
(*with* Greco, Gabriele) Una nuova dimostrazione della proprietà isoperimetrica dell'ipersfera nella classe degli insiemi aventi perimetro finito. (English summary) **57** #7332
**Greco, Gabriele** *See* **Gonzalez, Eduardo H. A.**, **57** #7332
**Gulliver, Robert D., II** The Plateau problem for surfaces of prescribed mean curvature in a Riemannian manifold. **49** #6010
**Hardt, Robert M.** On boundary regularity for integral currents or flat chains modulo two minimizing the integral of an elliptic integrand. **58** #23954
**Hildebrandt, Stéfan** (*with* Wente, Henry C.) Variational problems with obstacles and a volume constraint. **51** #1567
Interior $C^{1+\alpha}$-regularity of solutions of two-dimensional variational problems with obstacles. **51** #1568
**Lasry, Jean-Michel** *See* **Berliocchi, Henri**, **49** #9719
**Marcus, Moshe** (*with* Mizel, Victor J.) Transformations by functions in Sobolev spaces and lower semicontinuity for parametric variational problems. **48** #1013
(*with* Mizel, Victor J.) Lower semi-continuity in parametric variational problems,

the area formula and related results. **57** #7331

**Martio, Olli** Equicontinuity theorem with an application to variational integrals. **52** #1498

**Massari, Umberto** Esistenza e regolarità delle ipersuperfice di curvatura media assegnata in $R^n$. **50** #8240

Frontiere orientate di curvatura media assegnata in $L^p$. **54** #5953

**Mizel, Victor J.** *See* **Marcus, Moshe, 48** #1013 *and* **Marcus, Moshe, 57** #7331

**Parks, Harold R.** Explicit determination of area minimizing hypersurfacess. **56** #16507

**Penot, Jean-Paul** A remark on the direct method of the calculus of variations. **57** #3959

**Pitts, Jon T.** Regularity and singularity of one dimensional stationary integral varifolds on manifolds arising from variational methods in the large. **54** #11153

**(Poljak, B. T.)** *See* **Girsanov, I. V., 57** #3958

**Rivière, Néstor M.** *See* **Caffarelli, Luis A., 53** #14288 *and* **Caffarelli, Luis A., 54** #1061

**Schoen, Richard** (*with* Simon, Leon; Almgren, Frederick J., Jr.) Regularity and singularity estimates on hypersurfaces minimizing parametric elliptic variational integrals. I, II. **57** #7333

**Simon, Leon** On a theorem of de Giorgi and Stampacchia. **56** #13102

*See also* **Schoen, Richard; et al., 57** #7333

**Steffen, Klaus** Flächen konstanter mittlerer Krümmung mit vorgegebenem Volumen oder Flächeninhalt. **49** #6011

**Taylor, Jean E.** Regularity of the singular sets of two-dimensional area-minimizing flat chains modulo 3 in $R^3$. **48** #12225

Singularities in “soap bubbles” and “soap films”. **55** #6287

Existence and structure of solutions to a class of nonelliptic variational problems. **54** #8421

Unique structure of solutions to a class of nonelliptic variational problems. **52** #9062

The structure of singularities in soap-bubble-like and soap-film-like minimal surfaces. **55** #1208a

The structure of singularities in solutions to ellipsoidal variational problems with constraints in $\mathrm{R}^3$. **55** #1208b

Boundary regularity for solutions to various capillarity and free boundary problems. **58** #7336

Crystalline variational problems. **58** #12649

**Wente, Henry C.** The Dirichlet problem with a volume constraint. **48** #7094

*See also* **Hildebrandt, Stéfan, 51** #1567

Secondary classifications:

**Almgren, Frederick J., Jr.** (*with* Thurston, William P.) Examples of unknotted curves which bound only surfaces of high genus within their convex hulls. (**56** #1209)

**Bancel, Daniel** Sur le problème de Plateau dans une variété lorentzienne. (English summary) (**57** #17703)

**Bandle, Catherine** A geometrical isoperimetric inequality and applications to problems of mathematical physics. (**50** #10565)

**Chen, Bang-yen** On a variational problem on hypersurfaces. (**47** #995)

**D’Ambrosio, Ubiratan** Existence theorems in higher dimensional calculus of variations. (**58** #30684)

**Dao Cong Thi** Minimal currents and surfaces in Riemannian manifolds. (Russian) (**57** #7665)

Minimal real currents on compact Riemannian manifolds. (Russian) (**58** #24130)

A multidimensional variational problem in symmetric spaces. (Russian) (**58** #24131)

The stability of the homology of compact Riemannian manifolds. (Russian) (**58** #24132)

**Fomenko, A. T.** Multidimensional Plateau problems on Riemannian manifolds, and extraordinary homology and cohomology theories. I. (Russian) (**55** #6477)

**Hardt, Robert M.** Uniqueness of nonparametric area minimizing currents. (**56** #9441)

**Lawson, H. Blaine, Jr.** Geometric aspects of the generalized Plateau problem. (**54** #13116)

**Thurston, William P.** *See* **Almgren, Frederick J., Jr.,** (**56** #1209)

### 49F25 Surface area

**Barbosa, João Lucas Marquês** (*with* do Carmo, Manfredo Perdigão) Stable minimal surfaces. **49** #1307

**Boni, Mauro** Un teorema di semicontinuità inferiore. **58** #23955

**Brandi, Primo** Teoremi di semicontinuità inferiore e di approssimazione per le variazioni con peso in $\tilde{\mathrm{R}}$. **58** #23956

**do Carmo, Manfredo Perdigão** *See* **Barbosa, João Lucas Marquês, 49** #1307

**Evans, Griffith C.** Linkage coefficient and surface of given rectifiable boundary in 3-space. **58** #7343

**Finn, Robert** On the behavior of a capillary surface at a singular point. **55** #8947

**Gerhardt, Claus** Existence and regularity of capillary surfaces. (Italian summary) **51** #1569 (EA **51**)

A further note on the exterior capillarity problem. **54** #3562

**Giusti, Enrico** ★Minimal surfaces and functions of bounded variation. **58** #30685

**Jain, P. C.** *See* **Kadalbajoo, M. K., 57** #7334

**Kadalbajoo, M. K.** (*with* Jain, P. C.) Invariant imbedding approach for the solution of the minimal surface equation. **57** #7334

**Luttinger, J. M.** Generalized isoperimetric inequalities. II, III. **49** #6012

**Maisano, Francesco** Convergenza in lunghezza, convergenza in area. **57** #7335

**Oleksīv, Ī. Ja.** The area of a simple surface. (Russian) **52** #4092

**Ragni, Marcello** Sui concetti di approssimata subadditività e quasi subadditività. **58** #2576

**Syčev, A. V.** Moduli of families of curves and surfaces that pass through a point. (Russian) **51** #1570

**Taylor, Jean E.** Singularities in soap-bubble-like and soap-film-like surfaces. **53** #9014

**(Williams, Graham H.)** *See* **Giusti, Enrico, 58** #30685

Secondary classifications:

**Beeson, Michael J.** On the area of harmonic surfaces. (**58** #2868)

**Borgogno, Maria** Un teorema di approssimazione delle curve del piano e degli integrali. (**58** #23859)

**Candeloro, Domenico** L’area di Geöcze, per prodotti di applicazioni, come integrale alla Burkill-Cesari. (**58** #11314)

**Èliašberg, Ja. M.** *See* **Gromov, M. L.,** (**52** #9281)

**Fedorov, A. L.** The isoperimetric inequality for $p$-conductivity. (Russian) (**45** #7606)

**Fomenko, A. T.** Multidimensional Plateau problem in extraordinary homology and cohomology theories. (Russian) (**45** #1199)

**Giovannelli, Nicolò** Sulla variazione nel senso di Goffman delle funzioni di due variabili. (**58** #11275)

**Goffman, Casper** (*with* Liu, Fon Che) The area formula for Sobolev mappings. (**53** #13524)

**Gromov, M. L.** (*with* Èliašberg, Ja. M.) Construction of nonsingular isoperimetric films. (Russian) (**52** #9281)

**Hildebrandt, Stéfan** (*with* Kaul, Helmut) Two-dimensional variational problems with obstructions, and Plateau’s problem for $H$-surfaces in a Riemannian manifold. (**45** #5888)

**Kaul, Helmut** *See* **Hildebrandt, Stéfan,** (**45** #5888)

**Liu, Fon Che** *See* **Goffman, Casper,** (**53** #13524)

**Maisano, Francesco** Sulla variazione nel senso di Goffman delle funzioni di una variabile. (**57** #7336)

**Michener, Kim E.** Weak convergence of the area of nonparametric $L_1$ surfaces. (**57** #6373)

**Morse, Marston** Nondegenerate point pairs in global variational analysis. (**56** #13266)

**Pepe, W. D.** (*with* Ziemer, William P.) Slices, multiplicity, and Lebesgue area. (**47** #5232)

**Toralballa, L. V.** A geometric theory of surface area. III. Non-triangulable parametric surfaces. (**48** #6369)

**Ziemer, William P.** *See* **Pepe, W. D.,** (**47** #5232)

### 49F99 None of the above, but in this section

**Anderson, N.** (*with* Arthurs, A. M.) Maximum and minimum principles for capillary surface problems with prescribed contact angle. **58** #23957

**Arthurs, A. M.** *See* **Anderson, N., 58** #23957

**Ashby, N.** (*with* Brittin, Wesley E.; Love, W. F.; Wyss, Walter) Brachistochrone with Coulomb friction. **56** #9442

**Averna, Alfonso** Sull’esistenza dell’integrale di Fubini-Tonelli nel senso $(V)$-Weierstrass. **54** #3563

Teoremi di esistenza e di rappresentazione per l’integrale alla Weierstrass-Burkill-Cesari sopra una coppia di varietà. **51** #13839

(*with* Lodovici, Carla) L’integrale di Burkill-Cesari in una diversa assiomatica. **51** #13840

**Bandle, Catherine** Mean value theorems for functions satisfying the inequality $\Delta u + Ke^u \geqslant 0$. **49** #11367

**Barbieri, Francesco** (*with* Zanelli, Vanna) Un integrale del calcolo delle variazioni come norma di un funzionale lineare. **52** #1499

**Berruti Onesti, Natalia** Sopra la semicontinuità di una classe di integrali curvilinei per problemi variazionali di ordine $n$. **48** #7095

**Brittin, Wesley E.** *See* **Ashby, N.; et al., 56** #9442

**Caffarelli, Luis A.** The smoothness of the free surface in a filtration problem. **54** #13696

**Cinquini, Silvio** Un teorema di approssimazione delle curve dello spazio e degli integrali. **54** #11154

**Clarke, Frank H.** Multiple integrals of Lipschitz functions in the calculus of variations. **56** #9443

**Courant, Richard** ★Dirichlet’s principle, conformal mapping, and minimal surfaces. **56** #13103

**Garaev, K. G.** A method for the solution of invariant variational problems. (Russian) **57** #3960

**Giovannelli, Nicolò** Sull’approssimazione in variazione delle funzioni di rettangolo. **51** #8932

**Goldberg, Michael** The minimum path and the minimum motion of a moved line segment. **52** #15197

**Gurevič, A. B.** The “most economical” motion of a segment in the plane. (Russian) **52** #15198

**Hestenes, Magnus R.** Quadratic variational theory. (See MR **52** #15159)

**Kinderlehrer, David** Some open questions about variational inequalities. **49** #1308

**Kučera, Milan** Hausdorff measures of the set of critical values of functions of the class $C^{k,\lambda}$. **46** #4551

**Ljapidevskiĭ, V. Ju.** The existence and uniqueness of vector tubes for a discontinuous direction field. (Russian) **56** #13104

**Lodovici, Carla** *See* **Averna, Alfonso, 51** #13840

**Love, W. F.** *See* **Ashby, N.; et al., 56** #9442

**Massari, Umberto** (*with* Pepe, Luigi) Sull’approssimazione degli aperti lipschitziani di $R^n$ con varietà differenziabili. (English summary) **51** #1571

**Mimura, Fumitake** *See* **Nôno, Takayuki, 49** #1309 (E **49** #9720) *and* **Nôno, Takayuki, 49** #9720

**Morse, Marston** Singular quadratic functionals. **49** #7894

**Moscariello, Gioconda** Su una convergenza di successioni di integrali del calcolo delle variazioni. (English summary) **58** #2577

**Nôno, Takayuki** (*with* Mimura, Fumitake) A differential geometric formalism for multiple integral variational problems. **49** #1309 (E **49** #9720)

(*with* Mimura, Fumitake) Erratum: “A differential geometric formalism for multiple integral variational problems" (Tensor (N.S.) **26** (1972), 79–85). **49** #9720

**Pepe, Luigi** *See* **Massari, Umberto, 51** #1571

**Ragni, Marcello** Sull'esistenza dell'integrale alla Burkill-Cesari. **55** #8948

**Rund, Hanno** ★Invariant theory of variational problems on subspaces of a Riemannian manifold. **49** #7893

**Rupp, Russell D.** Approximation of the classical isoperimetric problem. **46** #2528

**Sbordone, Carlo** Sur une limite d'intégrales polynômiales du calcul des variations. **58** #18062

**(Schiffer, Menahem M.)** *See* **Courant, Richard, 56** #13103

**Stalford, Harold L.** Sufficiency theorem for discontinuous optimal cost surfaces. **58** #7345

**Udrişte, Constantin N.** Properties of a functional defined on the paths space of a Riemannian manifold. **58** #7346

**Wyss, Walter** *See* **Ashby, N.; et al., 56** #9442

**Zabotin, V. I.** A conditional extremum on a set of discontinuous functions. (Russian) **58** #7347

**Zanelli, Vanna** *See* **Barbieri, Francesco, 52** #1499

Secondary classifications:

**Bandle, Catherine** Sur un problème de Dirichlet non linéaire. (**47** #5436)

**Berger, Melvyn S.** (*with* Schechter, Martin) Embedding theorems and quasi-linear elliptic boundary value problems for unbounded domains. (**47** #803)

**Berliocchi, Henri** *See* **Lasry, Jean-Michel,** (**46** #329)

**Berry, Thomas G.** Invariant variational problems on a subspace of a Riemannian manifold. (**51** #14151)

**Brechtken-Manderscheid, Ursula** Feldtheorie bei Lagrange-Problemen. (**49** #7869)

**Caffarelli, Luis A.** The regularity of elliptic and parabolic free boundaries. (**53** #8662)

**Davies, Evan Tom** A geometrical theory of multiple integral problems in the calculus of variations. (**46** #4419)

**Edelen, Dominic G. B.** Theories with an additive gauge group. (**49** #7871)

**Finn, Robert** On the pendent water drop. (**54** #6677)

**Goldschmidt, Hubert** (*with* Sternberg, Shlomo) The Hamilton-Cartan formalism in the calculus of variations. (French summary) (**49** #6279)
Le formalisme de Hamilton-Cartan en calcul des variations. (**51** #4313)

**Kawaguchi, Akitsugu** On geometrization of calculus of variations. (**57** #4034)

**Kuperšmidt, B. A.** Lagrangian formalism in the calculus of variations. (Russian) (**53** #14537)

**Lasry, Jean-Michel** (*with* Berliocchi, Henri) Nouvelles applications des mesures paramétrées. (**46** #329)

**Lions, Jacques-Louis** Introduction to some aspects of free surface problems. (**58** #1644)

**Nedoma, Josef** ★Relatively convex analysis. (**58** #18138)

**Rund, Hanno** Multiple integral isoperimetric problems as problems of Lagrange. (**46** #4322)

**Schechter, Martin** *See* **Berger, Melvyn S.,** (**47** #803)

**Scheffer, Vladimir** Hausdorff measure and the Navier-Stokes equations. (**58** #23176)

**Sternberg, Shlomo** *See* **Goldschmidt, Hubert,** (**49** #6279)

**Tulczyjew, Włodzimierz M.** Sur la différentielle de Lagrange. (English summary) (**51** #14156)

**Wegmann, Rudolf** Extremalfiguren für eine Klasse von isoperimetrischen Problemen. (**55** #1223)

**Yokoyama, Sadaharu** Prime closed geodesics on pinched spheres. (**57** #4235)

## 49Gxx Variational methods and eigenvalues

Secondary classifications:

**(Basch, Michael)** *See* **Rektorys, K.,** (**58** #7268b)

**Rektorys, K.** ★Variační metody v inženýrských problémech a v problémech matematické fyziky. (Czech) [Variational methods in engineering problems and in problems of mathematical physics] (**58** #7268a)
★Variational methods in mathematics, science and engineering. (**58** #7268b)

**(Weinstein, Alexander)** *See* **Collection: Weinstein, Alexander,** (**52** #5243)

**Birthday:**
**Weinstein, Alexander** *See* **Collection: Weinstein, Alexander,** (**52** #5243)

**Collection:**
**Weinstein, Alexander** ★{Collection of articles dedicated to Alexander Weinstein on the occasion of his 75th birthday}. (**52** #5243)

### 49G05 Variational approach to eigenvalues

**Abramov, Ju. Š.** Variational principles for nonlinear eigenvalue problems. (Russian) **48** #7096

**Bandle, Catherine** Extensions of an inequality by Pólya and Schiffer for vibrating membranes. **47** #4112
Extension d'une inégalité géométrique d'Alexandrow et applications à un problème aux valeurs propres et à un problème de Poisson. **48** #4892
Bounds for the frequencies of an inhomogeneous string. **49** #3650

**Barston, E. M.** A minimax principle for nonoverdamped systems. (French, German, Italian and Russian summaries) **56** #6535

**Benci, Vieri** (*with* Micheletti, Anna Maria) Su un problema di autovalori per disequazioni variazionali. (English summary) **54** #1062

**Binding, Paul** (*with* Browne, Patrick J.) A variational approach to multiparameter eigenvalue problems for matrices. **56** #13105

**Browne, Patrick J.** *See* **Binding, Paul, 56** #13105

**Citlanadze, È. S.** On the question of the approximation of a functional and the gradient in locally linear spaces. (Russian. Georgian summary) **50** #2907

**Cruceanu, Ştefan** Superregularization in variational problems. (Romanian. French summary) **50** #14439

**Donsker, Monroe D.** (*with* Varadhan, S. R. S.) On a variational formula for the principal eigenvalue for operators with maximum principle. **50** #14440

**Fichera, G.** Metodi e risultati concernenti l'analisi numerica e quantitativa. (English summary) **58** #30686

**Hadeler, K. P.** Nonlinear eigenvalue problems. **53** #9015

**Hersch, Joseph** (*with* Monkewitz, Martin) Une inégalité isopérimétrique renforçant celle de Szegö-Weinberger sur les membranes libres. **45** #4240
Bounds for eigenvalues of Pólya's "plane-covering domains" by filling a torus or a cylinder. **58** #12650

**Holkin, V. I.** The minimum of the volume of a domain having a given first eigenvalue. (Russian) **58** #7344

**Karlovitz, Les Andrew** Remarks on variational characterizations of eigenvalues and $n$-width problems. **52** #9064

**Kučera, Milan** (*with* Nečas, Jindřich; Souček, Jiří) The eigenvalue problem for variational inequalities and a new version of the Ljusternik-Schnirelmann theory. **58** #23958

**Kuzanek, Jerry F.** Existence and uniqueness of solutions to a fourth order nonlinear eigenvalue problem. **51** #1572

**Ladevèze, J.** (*with* Ladevèze, P.) Majorations de constantes de Steklov. (English summary) **58** #23959

**Ladevèze, P.** *See* **Ladevèze, J., 58** #23959

**Micheletti, Anna Maria** *See* **Benci, Vieri, 54** #1062

**Monkewitz, Martin** *See* **Hersch, Joseph, 45** #4240

**Nečas, Jindřich** *See* **Kučera, Milan; et al., 58** #23958

**Roach, Gary F.** Variational methods for multiparametric eigenvalue problems. **58** #23960

**Souček, Jiří** *See* **Kučera, Milan; et al., 58** #23958

**Varadhan, S. R. S.** *See* **Donsker, Monroe D., 50** #14440

**CBMS Regional Conference Series in Applied Mathematics** ★Variational methods for eigenvalue approximation. **53** #3842

Secondary classifications:

**Abramov, Ju. Š.** Variational properties of the eigenvalues of certain problems that are nonlinear with respect to the parameter. (Russian. Armenian and English summaries) (**50** #3026)
A certain class of nonlinear eigenvalue problems. (Russian) (**50** #3027)

**Breuer, Shlomo** (*with* Roseman, Joseph J.) A lower bound for the eigenvalues of the elliptic Dirichlet problem for a general domain in terms of its characteristic dimension. (**58** #17589)

**Crooke, Philip S.** (*with* Sperb, René Peter) Isoperimetric inequalities in a class of nonlinear eigenvalue problems. (**58** #11897)

**Fichera, G.** The Neumann eigenvalue problem. (**53** #3515)

**Gould, S. H.** On the raising of eigenvalues by constraints. (**58** #22104)

**Kazarinov, Ju. F.** A certain problem for the extremum. (Russian. English summary) (**46** #5790)

**Kuttler, James R.** (*with* Sigillito, Vincent G.) Bounding eigenvalues of elliptic operators. (**58** #11996)

**Kuznecov, Ju. A.** The method of two-sided approximations for the eigenvalues of operators. (Russian) (**57** #1849)

**Lions, Jacques-Louis** Numerical methods for variational inequalities—applications in physics and in control theory. (**57** #3947)

**Manes, Adele** (*with* Micheletti, Anna Maria) Un'estensione della teoria variazionale classica degli autovalori per operatori ellittici del secondo ordine. (English summary) (**49** #9402)

**Micheletti, Anna Maria** Perturbazione dello spettro di un operatore ellittico di tipo variazionale, in relazione ad una variazione del campo. (**49** #885)
*See also* **Manes, Adele,** (**49** #9402)

**Miersemann, Erich** Verzweigungsprobleme für Variationsungleichungen. (**52** #8681)

**Naumann, Joachim** A characterization of the eigenvalues of a completely continuous selfadjoint operator. (**46** #4337)
Variationsmethoden für Existenz und Bifurkation von Lösungen nichtlinearer Eigenwertprobleme. I. (**47** #9382)

**Philippin, Gérard A.** Évaluations par défaut de l'énergie potentielle et des valeurs propres pour certains problèmes relatifs aux plaques élastiques. (**58** #14204)
Some isoperimetric norm bounds for the first eigenfunction of wedge-like membranes. (French and German summaries) (**54** #13338)

**Richert, Walter R.** Über ein Intermediateproblem zweiter Art. (**52** #14454)

**Roseman, Joseph J.** *See* **Breuer, Shlomo,** (**58** #17589)

**Sigillito, Vincent G.** *See* **Kuttler, James R.,** (**58** #11996)

**Sperb, René Peter** *See* **Crooke, Philip S.,** (**58** #11897)

**Werner, Bodo** Punktweise Schranken für Eigenfunktionen selbstadjungierter Randeigenwertaufgaben. (**56** #10031)

### 49G10 Rayleigh-Ritz methods

**Abramov, Ju. Š.** Inequalities for the eigenvalues of some nonlinear spectral problems. (Russian) **58** #23961

**Bingel, Werner A.** *See* **Klahn, Bruno, 56** #13106a *and* **Klahn, Bruno, 56** #13106b

**Bongers, A.** A convergence theorem for Ritz approximations of eigenvalues with application to CI-calculations. **55** #13330

**Bosarge, W. E., Jr.** (*with* Johnson, Olin; McKnight, R. S.; Timlake, W. P.) The Ritz-Galerkin procedure for nonlinear control problems. **47** #9827

**Filippi, Paul** Wave phenomena in inhomogeneous media. **56** #16508

**Johnson, Olin** *See* **Bosarge, W. E., Jr.; et al., 47** #9827

**Klahn, Bruno** (*with* Bingel, Werner A.) The convergence of the Rayleigh-Ritz method in quantum chemistry. I. The criteria of convergence. **56** #13106a
(*with* Bingel, Werner A.) The convergence of the Rayleigh-Ritz method in quantum chemistry. II. Investigation of the convergence for special systems of Slater, Gauss and two-electron functions. **56** #13106b

**Kohler-Jobin, Marie-Thérèse** ★Méthode de comparaison isopérimétrique de fonctionnelles de domaines de la physique mathématique. **58** #12651

**McKnight, R. S.** *See* **Bosarge, W. E., Jr.; et al., 47** #9827

**Planchard, Jacques** Sur l'approximation des valeurs propres et vecteurs propres des opérateurs hermitiens compacts. (English summary) **52** #4093

**Timlake, W. P.** *See* **Bosarge, W. E., Jr.; et al., 47** #9827

**Valadier, Michel** Fermeture étroite et bipolaire vague. **58** #23587

**Wakely, P. G.** An unfamiliar application of the Rayleigh-Ritz variation method. **58** #30687

**Zainea, Bucur** Generalization of the method of Galerkin. (Romanian. Russian and French summaries) **48** #9532

Secondary classifications:

**Agoškov, V. I.** Approximate solution of the transport equation in plane-parallel geometry, by a generalized Bubnov-Galerkin method. (Russian) (**58** #32664)

**Argyris, John H.** (*with* Dunne, P. C.) A simple theory of geometrical stiffness with applications to beam and shell problems. (**57** #18422)

**Canuto, C.** Eigenvalue approximations by mixed methods. (French summary) (**58** #8229)

**Dunne, P. C.** *See* **Argyris, John H.,** (**57** #18422)

**Godunov, S. K.** (*with* Ogneva, V. V.; Prokopov, G. P.) The convergence of the modified steepest descent method in the computation of eigenvalues. (Russian) (**48** #3235)

**Jeng, Garbo** (*with* Wexler, Alvin) Self-adjoint variational formulation of problems having non-self-adjoint operators. (**58** #2563)

**Lappano, M.** (*with* Schiffrer, G.; Sgroi, M.) A computational method for eigenvalues and eigenvectors. II. A simple three-body system. (**58** #14089)

**Najzar, K.** Error-estimates for the Ritz's method of finding eigenvalues and eigenfunctions. (**46** #1076)

**Ogneva, V. V.** *See* **Godunov, S. K.; et al.,** (**48** #3235)

**Omodei, Bernard J.** On the numerical stability of the Rayleigh-Ritz method. (**58** #19232)

**Planchard, Jacques** Un problème quadratique aux valeurs propres. (**47** #9090)

**Prokopov, G. P.** *See* **Godunov, S. K.; et al.,** (**48** #3235)

**Schiffrer, G.** *See* **Lappano, M.; et al.,** (**58** #14089)

**Sgroi, M.** *See* **Lappano, M.; et al.,** (**58** #14089)

**Wexler, Alvin** *See* **Jeng, Garbo,** (**58** #2563)

### 49G15 Weinstein and Aronsajn methods, intermediate problems

**Crooke, Philip S.** On an integral inequality for divergence-free functions. **50** #10981

**Fox, David W.** (*with* Stadter, James T.) An eigenvalue estimation method of Weinberger and Weinstein's intermediate problems. **55** #8949

**Jähnig, Jürgen** Über die Grenzen der Anwendbarkeit des Bazley-Fox-Verfahrens. **55** #3933

**Linden, Hansjörg** Obere Schranken für Eigenwerte von Eigenwertaufgaben der Form $(\lambda^2 I-\lambda A-B)x=0$. (English summary) **55** #6288

Abschnittszerlegungen bei oberen Schranken für Eigenwerte von Operatorpolynomen. **56** #1187

**Löbel, Uwe** Zur Stabilität einer Variante des Bazley-Fox-Verfahrens. **56** #3732

**Richert, Walter R.** Intermediateprobleme bei Matrizeneigenwertaufgaben. (English summary) **55** #6289

Über eine spezielles Intermediateproblem. (English summary) **53** #9016

Über Intermediateprobleme erster Art. (English summary) **58** #23962

**Stadter, James T.** *See* **Fox, David W., 55** #8949

**Stenger, William** Some extensions and applications of the new maximum-minimum theory of eigenvalues. **56** #6536

**Weinelt, Wilfried** Über apriore Fehlerabschätzungen der Eigenwertnäherungen beim Bazley-Fox-Verfahren. **55** #3934

**Weinstein, Alexander** Some theoretical ramifications of the intermediate problems for eigenvalues. **51** #11260

Secondary classifications:

**Abramov, Ju. Š.** (*with* Harazov, D. F.) The method of intermediate problems for certain equations with nonsymmetric and unbounded operators, and its application to eigenvalue problems for differential equations. (Russian. Georgian summary) (**58** #23699)

**Harazov, D. F.** *See* **Abramov, Ju. Š.,** (**58** #23699)

**Löbel, Uwe** Zur Stabilität beim Bazley-Fox-Verfahren. (**50** #8967)

Stabilitätsuntersuchungen bei Verfahren zur Bestimmung unterer Eigenwertschranken. (**55** #13803)

### 49G20 Linear operators in Hilbert spaces

**Aleksieva, I. V.** On a class of variational problems. (Bulgarian. Russian and English summaries) **57** #10550

**Anderssen, R. S.** (*with* Omodei, Bernard J.) On the stability of uniformly asymptotically diagonal systems. **54** #13697

**Arthurs, A. M.** Complementary variational principles for linear equations. **50** #8241

**Barnsley, Michael F.** (*with* Robinson, Peter D.) Bivariational bounds. **50** #1097

**Das, Kiran Chandra** On stationary values of Rayleigh quotient of an operator. **50** #8242

**Fichera, G.** Osservazioni e risultati relativi al calcolo degli autovalori di taluni operatori positivi. (English summary) **53** #6398

**Harrell, Evans M., II** Generalizations of Temple's inequality. **58** #7348

**Laws, Norman** The use of energy theorems to obtain upper and lower bounds. **51** #6547

**Omodei, Bernard J.** *See* **Anderssen, R. S., 54** #13697

**Robinson, Peter D.** *See* **Barnsley, Michael F., 50** #1097

**Wilkins, J. Ernest, Jr.** A variational problem in Hilbert space. **54** #3564

Secondary classifications:

**Baumgärtel, H.** Störungstheorie eines Eigenwertproblems vom Rellichschen Typ. (**45** #2523)

**Collins, W. D.** Upper and lower bounds for solutions of linear operator problems with unilateral constraints. (**58** #7145)

**Das, Kiran Chandra** Extrema of the Rayleigh quotient and normal behavior of an operator. (**48** #4799)

**Davis, Chandler** An extremal problem for extensions of a sesquilinear form. (**52** #15068)

**Fichera, G.** Invarianza rispetto al gruppo unitario e calcolo degli autovalori. (**51** #8873)

**Flemming, Uwe** Fehlerabschätzungen für Näherungseigenwerte und -eigenvektoren bei der Pseudostöriteration. (**56** #17058)

**Hadeler, K. P.** Non-quadratic variational problems. (**46** #688)

**Kučera, Milan** A new method for the obtaining of eigenvalues of variational inequalities of the special type (preliminary communication). (**55** #8860)

**Kuhnert, Frieder** Beziehungen zwischen den Verfahren von Ritz und Bazley. (English summary) (**54** #14359)

**Langer, Ulrich** Untersuchungen zum Kummerschen Verfahren zur numerischen Behandlung nichtlinearer Eigenwertaufgaben. (**56** #3663)

**Milota, Jaroslav** Universal almost optimal variational methods. (**45** #1373)

**Rogers, Colin** *See* **Swetits, J. J.,** (**58** #12658)

**Sharma, C. S.** (*with* SriRankanathan, S.) A coordinate-free treatment of the minimax and maxmini theorems for eigenvalues of self-adjoint operators on a Hilbert space. (**55** #6224)

**SriRankanathan, S.** *See* **Sharma, C. S.,** (**55** #6224)

**Swetits, J. J.** (*with* Rogers, Colin) On complementary extremum principles. (**58** #12658)

**Viktorov, E. D.** The generalized method of Kantorovič in the eigenvalue problem. (Russian) (**58** #32192)

**Werner, Bodo** Das Spektrum von Operatorscharen mit verallgemeinerten Rayleighquotienten. (**50** #1019)

### 49G99 None of the above, but in this section

**Arthurs, A. M.** Dual bivariational principles for linear problems. **57** #7337

**Barnes, Earl R.** The shape of the strongest column and some related extremal eigenvalue problems. **58** #12652

**Bielak, Jacobo** *See* **Herrera, Ismael, 57** #7338

**Gol'dštein, Ju. B.** (*with* Solomešč, M. A.) Variational problems for nonlocal functionals. (Russian) (See RŽMat **1972** #6 B495)

**Gregory, John** A theory of numerical approximation for elliptic forms associated with second order differential systems. Application to eigenvalue problems. **48** #1014

An oscillation theory for second-order integral differential equations. **50** #3089

A numerical approximation theory for second-order integral differential equations. **50** #3090

Elliptic quadratic forms, focal points, and a generalized theory of oscillation. **51** #8933

**Herrera, Ismael** (*with* Bielak; Jacobo) Dual variational principles for diffusion equations. **57** #7338

**Narodic'kiĭ, V. O.** Operators of Laplace-Lévy type. (Russian) **57** #7172

**Solomešč, M. A.** *See* **Gol'dštein, Ju. B.,** (See RŽMat **1972** #6 B495)

**Velte, Waldemar** Komplementäre Extremalprobleme. **53** #9017

**Werner, Jochen** Das Davidon-Fletcher-Powell-Verfahren und seine Anwendung auf nichtlineare, gewöhnliche Randwertaufgaben. **54** #13698

Secondary classifications:

**Barnsley, Michael F.** (*with* Robinson, Peter D.) Bivariational bounds associated with non-self-adjoint linear operators. (**56** #3675)

**Bazley, Norman W.** (*with* Reeken, Michael) Lower bounds for critical values. (**52** #14446)

**Fichera, G.** Invarianti ortogonali e autovalori degli operatori ellittici. (English summary) (**48** #924)

Approximation of the eigenvectors of a positive compact operator and estimate of the error. (Italian summary) (**55** #6222)

**Gregory, John** An approximation theory for elliptic quadratic forms on Hilbert spaces: Application to the eigenvalue problem for compact quadratic forms. (**46** #2449)

Comparison theorems for oscillation of nonlinear, non-self-adjoint equations by use of quadratic forms. (**56** #8971)

**Huseyin, Koncay** (*with* Plaut, R. H.) Extremum properties of the generalized Rayleigh quotient associated with flutter instability. (**55** #3432)

**Jähnig, Jürgen** Qualitative Untersuchungen einer allgemeinen Verfahrensklasse zur näherungsweisen Eigenwert- und Eigenvektorbestimmung. (**56** #13601)

**Johnson, Claes** A convergence estimate for an approximation of a parabolic variational inequality. (**58** #3539)

**Mosco, Umberto** Error estimates for some variational inequalities. (**57** #13168)

**Najzar, K.** Stability of the method of least squares for finding the eigenvalues of a symmetric operator. (**45** #7491)

**Plaut, R. H.** *See* **Huseyin, Koncay,** (**55** #3432)

**Reeken, Michael** *See* **Bazley, Norman W.,** (**52** #14446)

**Robinson, Peter D.** *See* **Barnsley, Michael F.,** (**56** #3675)

**Šapošnikova, T. O.** Certain estimates of the convergence of variational methods. (Russian. English summary) (**46** #4718)

## 49H05 Variational principles of physics [See also 70Hxx, 81A09.]

**Anderson, Ian M.** Tensorial Euler-Lagrange expressions and conservation laws. **58** #12653

**Anderson, N.** (*with* Arthurs, A. M.) Complementary variational principles for the

problem of the equilibrium of a circular membrane. **56** #3733
(*with* Arthurs, A. M.) Variational principles for complex equations. **54** #11155
**Arthurs, A. M.** (*with* Reeves, R. I.) Complementary variational principles for a class of biharmonic problems. **51** #1573
(*with* Walsh, G. R.) An isoperimetric problem. **56** #1188
(*with* Duggan, R. C.) Dual extremum principles and the hypercircle for biharmonic problems. **56** #3734
Variational formulation of Hamiltonian boundary value problems. **56** #16509
(*with* Jones, M. E.) Variational principles for linear mixed boundary value problems. **58** #30688
*See also* **Anderson, N.**, **54** #11155 *and* **Anderson, N.**, **56** #3733
**Barcilon, Victor** An isoperimetric problem for entire functions. **53** #3843
**Barston, E. M.** Eigenvalue problem for Lagrangian systems. VII. **49** #9721
**Bielak, Jacobo** *See* **Herrera, Ismael**, **50** #8243
**Blankenbecler, Richard** *See* **Madan, Rabinder N.**, **57** #17472
**Cohen, Maurice** (*with* McEachran, R. P.) The variational calculation of matrix elements: some anomalies. **51** #4012
**Duggan, R. C.** *See* **Arthurs, A. M.**, **56** #3734
**Edelen, Dominic G. B.** Invariance theory for nonlocal variational principles. I. Extended variations. (French, German, Italian and Russian summaries) **45** #7563
Invariance theory for nonlocal variational principles. II. Weak invariance and global conservation laws. (French, German, Italian and Russian summaries) **45** #7564
Invariance theory for nonlocal variational principles. III. Strong and absolute invariance. (French, German, Italian and Russian summaries) **45** #7565
Invariance theory for nonlocal variational principles. IV. Lagrangian classes. (French, German, Italian and Russian summaries) **45** #7566
(*with* Laws, Norman) On equations of motion and constitutive relations as variational inferences. **46** #2529
Theories with carrier fields: multiple-interaction nonlocal formulations. (Polish and Russian summaries) **56** #13107
★Lagrangian mechanics of nonconservative nonholonomic systems. **58** #12654
**Evans, F. J.** *See* **Jones, D. L.**, **47** #941
**Friedman, Avner** Regularity theorems for variational inequalities in unbounded domains and applications to stopping time problems. **50** #5596
**Gallagher, Richard H.** *See* **Mang, Herbert A.**, **56** #9444
**Goodwin, B. E.** *See* **Hamilton, E. P.**, (See Zbl **195**, 400; MR **48** #5746)
**Hamilton, E. P.** (*with* Goodwin, B. E.) The inverse problem of the calculus of variations. (See Zbl **195**, 400; MR **48** #5746)
**Haug, Edward J., Jr.** *See* **Reiss, Robert**, **57** #7339
**Herrera, Ismael** (*with* Bielak, Jacobo) A simplified version of Gurtin's variational principles. **50** #8243
General variational principles applicable to the hybrid element method. **56** #16510
**Jones, D. L.** (*with* Evans, F. J.) A classification of physical variables and its application in variational methods. **47** #941
**Jones, M. E.** *See* **Arthurs, A. M.**, **58** #30688
**Kohler-Jobin, Marie-Thérèse** Démonstration de l'inégalité isopérimétrique $P\lambda^2 > \pi j_0^4/2$, conjecturée par Pólya et Szegő. (English summary) **52** #6551
**Komkov, Vadim** Control theory; variational principles, and optimal design of elastic systems. **58** #12655
**Laws, Norman** *See* **Edelen, Dominic G. B.**, **46** #2529
**Madan, Rabinder** N. (*with* Blankenbecler, Richard) Variation-iteration principle for wave functions. **57** #17472
**Magri, Franco** Variational formulation for every linear equation. (French, German, Italian and Russian summaries) **56** #1189
**Mang, Herbert A.** (*with* Gallagher, Richard H.) A critical assessment of the simplified hybrid displacement method. **56** #9444
**McEachran, R. P.** *See* **Cohen, Maurice**, **51** #4012
**Mihlin, S. G.** ★Вариационные методы в математической физике. (Russian) [Variational methods in mathematical physics] **50** #5597
**Noble, Ben** (*with* Sewell, M. H.) On dual extremum principles in applied mathematics. **50** #8244
**Oden, J. T.** (*with* Reddy, J. N.) On dual-complementary variational principles in mathematical physics. (French, German, Italian and Russian summaries) **56** #9445
**Pomraning, G. C.** Variational interpolation. **58** #12656
**Razumihin, B. S.** Principles of analytical mechanics and the problem of optimal control. I. Hamilton's principle for optimal control problems. **54** #13699
Principles of analytical mechanics and the problem of optimal control. II. Numerical methods. **54** #13700
**Reddy, J. N.** *See* **Oden, J. T.**, **56** #9445
**Reeves, R. I.** *See* **Arthurs, A. M.**, **51** #1573
**Reiss, Robert** (*with* Haug, Edward J., Jr.) Extremum principles for linear initial-value problems of mathematical physics. **57** #7339
**Rogers, Colin** *See* **Swetits, J. J.**, **58** #12658
**Sewell, M. H.** *See* **Noble, Ben**, **50** #8244
**Stadler, Wolfram** Natural structural shapes (the static case). **58** #12657
**Swetits, J. J.** (*with* Rogers, Colin) On complementary extremum principles. **58** #12658
**Troickiĭ, V. A.** On some optimum problems of vibration theory. **51** #1574
**Walsh, G. R.** *See* **Arthurs, A. M.**, **56** #1188

Secondary classifications:

**Acker, Andrew F.** Isoperimetric inequalities involving heat flow under linear radiation conditions. (**56** #3467)
**Aldaya, Víctor** (*with* de Azcárraga, José A.) Variational principles on *r*th order jets of fibre bundles in field theory. (**58** #14701a)
(*with* de Azcárraga, José A.) Vector bundles, *r*th order Noether invariants and canonical symmetries in Lagrangian field theory. (**58** #14701b)
**Allcock, G. R.** The intrinsic properties of rank and nullity of the Lagrange bracket in the one dimensional calculus of variations. (**52** #4328)
**Arthurs, A. M.** (*with* Duggan, R. C.) Error bounds for variational solutions of the nonlinear Föppl-Hencky equation. (**56** #17099)
On variational principles and the hypercircle for boundary value problems. (**58** #2537)
**de Azcárraga, José A.** *See* **Aldaya, Víctor**, (**58** #14701a) *and* **Aldaya, Víctor**, (**58** #14701b)
**Barut, Asim O.** Extended singularities of the electromagnetic field as models of elementary particles. (**58** #32625)
**Bassanini, Piero** Sopra un principio variazionale in fluidodinamica. (English summary) (**45** #7558)
**Brézis, Haïm** (*with* Stampacchia, Guido) The hodograph method in fluid-dynamics in the light of variational inequalities. (**58** #32380)
**Daniljuk, Ī. Ī.** (*with* Mihaljuk, M. Ĭ.) The local uniqueness of the solution of the inverse logarithmic potential problem. (Ukrainian. English and Russian summaries) (**48** #2408)
**Duffin, Richard J.** (*with* Karlovitz, L. A.) Orbits of most action on a convex billiard table. (**55** #7031)
**Duggan, R. C.** *See* **Arthurs, A. M.**, (**56** #17099)
**Đukić, Đorde S.** On the motion of a dynamic system with minimal dissipation. (**57** #7307)
**Duvaut, Georges** ★Méthodes variationelles et applications. (**57** #18405)
**Edelen, Dominic G. B.** Non-local variational mechanics. IX. Lagrangians with multiple interactions. (**56** #9579)
**Fage, M. K.** *See* **Kudrin, V. D.; et al.**, (**58** #32435)
**Hagedorn, Peter** Canonical transformations in the optimal control of mechanical systems. (French and German summaries) (**57** #18349)
**Hersch, Joseph** (*with* Payne, Lawrence E.; Schiffer, Menahem M.) Some inequalities for Stekloff eigenvalues. (**52** #8676)
**Ichtiaroglou, S.** (*with* Katopodis, K.; Michalodimitrakis, M.) On the continuation of periodic orbits in the three-body problem. (**58** #19499)
**Karlovitz, L. A.** *See* **Duffin, Richard J.**, (**55** #7031)
**Katopodis, K.** *See* **Ichtiaroglou, S.; et al.**, (**58** #19499)
**Kudrin, V. D.** (*with* Kuzin, V. A.; Synah, V. S.; Fage, M. K.) Some nonlinear problems of mathematical chemistry and physics. (Russian) (**58** #32435)
**Kuzin, V. A.** *See* **Kudrin, V. D.; et al.**, (**58** #32435)
**Lawruk, Bohdan** (*with* Tulczyjew, Włodzimierz M.) Criteria for partial differential equations to be Euler-Lagrange equations. (**56** #13277)
**Meffroy, Jean** Sur une extension de la théorie de la variation seconde de l'action hamiltonienne. (English summary) (**55** #13482)
**Michalodimitrakis, M.** *See* **Ichtiaroglou, S.; et al.**, (**58** #19499)
**Mihaljuk, M. Ĭ.** *See* **Daniljuk, Ī. Ī.**, (**48** #2408)
**Murray, James C.** A note on some variational principles for a class of linear initial-boundary value problems. (**53** #12209)
**Neĭman, Ju. M.** On a justification of the variational method in the theory of the earth's shape. (Russian) (**57** #4989)
**Oden, J. T.** (*with* Reddy, J. N.) ★Variational methods in theoretical mechanics. (**57** #18413)
**Payne, Lawrence E.** *See* **Hersch, Joseph; et al.**, (**52** #8676)
**Pérez-Rendón, Antonio** Yang-Mills interactions; a problem not depending on the gauge invariance. (**58** #14735)
A minimal interaction principle for classical fields. (**53** #9792)
**Reddy, J. N.** *See* **Oden, J. T.**, (**57** #18413)
**Rieder, Georg** On bounds in linear elasticity and potential theory. (**53** #12162)
**Rund, Hanno** Generalized Clebsch representations on manifolds. (**53** #11665)
**Schiffer, Menahem M.** *See* **Hersch, Joseph; et al.**, (**52** #8676)
**Snow, Donald R.** Rayleigh's principle by equivalent problems. (**58** #17462)
**Stampacchia, Guido** *See* **Brézis, Haïm**, (**58** #32380)
**Synah, V. S.** *See* **Kudrin, V. D.; et al.**, (**58** #32435)
**Tulczyjew, Włodzimierz M.** *See* **Lawruk, Bohdan**, (**56** #13277)
**Vergara Caffarelli, Giorgio** Regolarità di un problema di disequazioni variazionali relativo a due membrane. (English summary) (**46** #3967)
**Zienkiewicz, Olgierd C.** Constrained variational principles and penalty function methods in finite element analysis. (**55** #9573)

## 50–XX GEOMETRY [For algebraic geometry, see 14–XX.]

**Bachmann, Friedrich** ★Aufbau der Geometrie aus dem Spiegelungsbegriff. **49** #11368
**Heise, Werner** Minkowski-Ebenen gerader Ordnung. (English summary) **49** #9735

Secondary classifications:

**Kelly, John B.** Hypermetric spaces. (**53** #9161)
**Klapka, Jiří** The Wälsch invariant of line congruences in three-dimensional projective space $P_3$ and their Laplace transforms. (Russian) (**47** #4160)

### 50–01 Elementary exposition (collegiate level)

**(Aleksandrov, P. S.)** *See* **Hilbert, David; et al.**, **55** #3935
**Bakel'man, I. Ja.** ★Inversions. **51** #11261
**(Bazylev, V. T.)** *See* **Proceedings: All-Union Seminar of Department Heads and Teaching Staff of the Geometry Departments of the Pedagogical Institutes of the USSR**, **55** #6290
**Boltjanskiĭ, V. G.** ★Enveloppes. **52** #1500a
**Buchmann, G.** ★Nichteuklidische Elementargeometrie. **52** #15199
**Camden, Bosco** Geometry–past, present, and future. **53** #14289
**Čencov, N. N.** *See* **Škljarskiĭ, D. O.; et al.**, **52** #15205
**Cohn-Vossen, Stefan** *See* **Hilbert, David**, **55** #3935
**Collings, S. N.** Reflections on a triangle. **57** #3965
Reflections on reflections. **57** #3968

**Coxeter, Harold Scott MacDonald** ★Introduction to geometry. **49** #11369
**Cundy, H. Martyn** Reflections on reflections. **57** #3969
**(Donini, Pier Giovanni)** *See* **Jaglom, I. M., 52** #15201
**Dubnov, Ja. S.** ★Erreurs dans les démonstrations géométriques. **52** #1500c
**Dubuc, Serge** ★Géométrie plane. **48** #12226
**(Duclos, Daniel)** *See* **Evelyn, Cecil John Alvin; et al., 57** #10551
**Džumaev, K. K.** Some peculiarities of geometric problems. (Russian) **58** #30689
**Egorov, I. P.** ★Лекции по аксиоматике Вейля и неевклидовым геометриям. (Russian) [Lectures on Weyl's axiomatics and noneuclidean geometries]. **52** #15200
**Evelyn, Cecil John Alvin** (*with* Money-Coutts, G. B.; Tyrrell, J. A.) ★Le théorème des sept cercles. **57** #10551
**Eves, Howard** ★A survey of geometry. **48** #1015
**Ewald, Günther** ★Geometry: an introduction. **51** #1575
★Geometrie. **51** #1576
**Fetisov, A. I.** ★Démonstrations géométriques. **52** #1500b
**Fucke, Rudolf** (*with* Kirch, Konrad; Nickel, Heinz) ★Darstellende Geometrie. **58** #7349
★Zwei- und Mehrtafelprojektion. **58** #18064
**Gans, David** ★An introduction to non-Euclidean geometry. **57** #3961
**Geissinger, Ladnor** Pythagoras and the Cauchy-Schwarz inequality. **52** #6552
**Giering, Oswald** (*with* Kozinowski, Otto; Seybold, Hans) ★Konstruktive Ingenieurgeometrie. **52** #11721
**Giršovič, M. V.** (*with* Pankratov, A. A.; Larionov, E. I.) ★Геометрия. Вып. 1. (Russian) [Geometry. No. 1] **50** #10982
(*with* Larionov, E. I.; Pankratov, A. A.) ★Геометрия. Вып. 2. Часть 1. (Russian) [Geometry. No. 2. Part 1] **50** #10983
(*with* Susloparova, G. P.) ★Геометрия. Вып. 3. (Russian) [Geometry. No. 3] **52** #4094
(*with* Pankratov, A. A.; Trofimova, G. V.) ★Общая теория квадрик (кривых и поверхностей 2-го порядка). (Russian) [General theory of quadrics (of second order curves and surfaces)] **52** #4095
**Golovina, L. I.** (*with* Jaglom, I. M.) ★Inducción en la geometría. (Spanish) [Induction in geometry] **56** #9446
**Haack, Wolfgang** ★Darstellende Geometrie. II: Körper mit krummen Begrenzungsflächen. Kotierte Projektionen. **49** #9722
**Hilbert, David** (*with* Cohn-Vossen, Stefan) ★Anschauliche Geometrie. **55** #3935
**Holland, Gerhard** ★Geometrie für Lehrer und Studenten. Band 1. **57** #3962
**Hoschek, Josef** (*with* Spreitzer, Gustav) ★Aufgaben zur darstellenden Geometrie. **52** #1501
**Jaglom, I. M.** ★Trasformazioni geometriche. **52** #15201
*See also* **Škljarskiĭ, D. O.; et al., 52** #15205 *and* **Golovina, L. I., 56** #9446
**Karzel, Helmut** (*with* Sörensen, Kay; Windelberg, Dirk) ★Einführung in die Geometrie. **54** #13701
**Kirch, Konrad** *See* **Fucke, Rudolf; et al., 58** #7349
**Klix, Wolf-Dieter** Mathematisches Lehrfach "Darstellende Geometrie". Gegenwärtige Situation und Ansätze zur Verbesserung. **52** #1502
**Komissaruk, A. M.** ★Аффинная геометрия. (Russian) [Affine geometry] **58** #12659
**Kozinowski, Otto** *See* **Giering, Oswald; et al., 52** #11721
**Kunz, Ernst** ★Ebene Geometrie. **57** #13656
**Kustaanheimo, Paul Edwin** *See* **Nevanlinna, R., 58** #12660
**Larionov, E. I.** *See* **Giršovič, M. V.; et al., 50** #10982 *and* **Giršovič, M. V.; et al., 50** #10983
**Levi, Howard** ★Foundations of geometry and trigonometry. **57** #10552
**Lingenberg, Rolf** ★Grundlagen der Geometrie. **54** #8422
*See also* **Scherk, Peter, 54** #13702
**Locher-Ernst, Louis** ★Raum und Gegenraum. **57** #3963
**Longuet-Higgins, Michael S.** Reflections on a triangle. **57** #3966
Reflections on reflections. **57** #3967
**Marruccelli, Aldo** Sulla nozione geometrica di congruenza. **58** #23963
**Maxwell, E. A.** Geometry for the geometers. **57** #17473
**Meschkowski, Herbert** ★Grundlagen der Euklidischen Geometrie. **51** #1577
★Grundlagen der Euklidischen Geometrie. **51** #1578
★Ungelöste und unlösbare Probleme der Geometrie. **52** #1503
**Mihăileanu, N. N.** ★Geometrie analitică, proiectivă şi diferenţială: complemente. (Romanian) [Analytic, projective and differential geometry: complements] **54** #8423
**Mihalek, R. J.** ★Projective geometry and algebraic structures. **53** #1380
**Mitschka, Arno** ★Axiomatik in der Geometrie. **58** #30690
**Moise, Edwin E.** ★Elementary geometry from an advanced standpoint. **49** #9723
**Molnár, Emil** Die Kegelschnitte auf der Grundlage des Spiegelungsbegriffs. **50** #8245
**Money-Coutts, G. B.** *See* **Evelyn, Cecil John Alvin; et al., 57** #10551
**Morgantini, Edmondo** ★Lezioni di geometria analitica ed algebra lineare. **50** #5598
**Nevanlinna, R.** (*with* Kustaanheimo, Paul Edwin) ★Grundlagen der Geometrie. **58** #12660
**Nickel, Heinz** *See* **Fucke, Rudolf; et al., 58** #7349
**Nosik, R. G.** Vectorial equations for the simplest geometric transformations. (Russian) **52** #9065
**Nowicki, Przemysław** $n$-leaf clover. (Polish) **58** #7350
**Pankratov, A. A.** *See* **Giršovič, M. V.; et al., 50** #10982; **Giršovič, M. V.; et al., 50** #10983 *and* **Giršovič, M. V.; et al., 52** #4095
**Pejas, Wolfgang** ★Projektive Geometrie. **57** #7340
**Penzov, Ju. E.** ★Аналитическая геометрия. (Russian) [Analytic geometry] **50** #5599
**Pickert, Günter** ★Analytische Geometrie. **58** #30691
**Platone, Giulio** Estensione del teorema di Pitagora alla geometria generale. **58** #30692
**Pucelj, Ivan** ★Neevklidične geometrije. (Slovenian) [Noneuclidean geometry] **52** #15202
**Rohr, Richard** Le cadran solaire analemmatique. **58** #7351
**Schaal, Hermann** ★Lineare Algebra und Analytische Geometrie. Band II. **53** #14290
**Scherk, Peter** (*with* Lingenberg, Rolf) ★Rudiments of plane affine geometry. **54** #13702
**(Schmidt, Dirk)** *See* **Smogorževs'kiĭ, O. S., 58** #2578
**Schröder, Eberhard H.** ★Darstellende Geometrie. **52** #15203
**Seebach, K.** La métrisation des espaces vectoriels. **52** #15204
**Seybold, Hans** *See* **Giering, Oswald; et al., 52** #11721
**Škljarskiĭ, D. O.** (*with* Čencov, N. N.; Jaglom, I. M.) ★Геометрические оценки и задачи из комбинаторной геометрии. (Russian) [Geometrical estimates and problems from combinatorial geometry] **52** #15205
**Ślusarczyk, Bronisław** ★Geometria rzutowa i wykreślna w zakresie krzywych i powierzchni stopnia drugiego. (Polish) [Projective and descriptive geometry within the limits of second degree curves and surfaces] **55** #3936
**Smogorževs'kiĭ, O. S.** ★Lobatschewskische Geometrie. **58** #2578
**Sörensen, Kay** *See* **Karzel, Helmut; et al., 54** #13701
**Spreitzer, Gustav** *See* **Hoschek, Josef, 52** #1501
**Susloparova, G. P.** *See* **Giršovič, M. V., 52** #4094
**Sviridov, D. T.** The Bravais problem for $n$-dimensional crystallography ($n > 3$). (Russian) **57** #3964
**(Teller, Joan W.)** *See* **Bakel'man, I. Ja., 51** #11261
**Trofimova, G. V.** *See* **Giršovič, M. V.; et al., 52** #4095
**Tyrrell, J. A.** *See* **Evelyn, Cecil John Alvin; et al., 57** #10551
**(Unger, Georg)** *See* **Locher-Ernst, Louis, 57** #3963
**(Vega, Carlos)** *See* **Golovina, L. I.; et al., 56** #9446
**Verde Star, Luis** Some applications of linear algebra in Euclidean geometry. (Spanish) **54** #1063
**Villa, Mario** ★Esercizi di geometria. Vol. II. **50** #8249
★Esercizi di geometria. Vol. I. **50** #8248
★Lezioni di geometria per gli studenti dei corsi di laurea in fisica ed ingegneria. **50** #8250
★Lezioni di geometria per gli studenti del corso di laurea in matematica. Vol. I. **50** #8246
★Lezioni di geometria per gli studenti del corso di laurea in matematica. Vol. II. **50** #8247
**(Williams, Susan)** *See* **Bakel'man, I. Ja., 51** #11261
**Windelberg, Dirk** *See* **Karzel, Helmut; et al., 54** #13701
**Wong, Yung Chow** ★Linear geometry in Euclidean 4-space. **58** #2579
**Geometry** *See* **Proceedings: All-Union Seminar of Department Heads and Teaching Staff of the Geometry Departments of the Pedagogical Institutes of the USSR, 55** #6290
**Proceedings:**
**All-Union Seminar of Department Heads and Teaching Staff of the Geometry Departments of the Pedagogical Institutes of the USSR** ★Труды Всесоязного семинара заведующих кафедрами и преподавателей геометрии педагогических институтов СССР (Тбилиси, 19–22 декабря 1972 года). (Russian) [Proceedings of the All-Union Seminar of Department Heads and Teaching Staff of the Geometry Departments of the Pedagogical Institutes of the USSR (Tbilisi, December 19–22, 1972)] **55** #6290

Secondary classifications:

**(Bachmann, Friedrich)** *See* **Fundamentals of mathematics**, (**49** #8787) *and* **Grundzüge der Mathematik**, (**49** #8789)
**Baur, Arnold** *See* **Fladt, Kuno**, (**55** #3978)
**Behnke, Heinrich** Die Autonomie der Geometrie. (**51** #5229)
The autonomy of geometry. (Bulgarian) (**53** #12)
The autonomy of geometry. (Polish) (**57** #5525)
*See also* **Fundamentals of mathematics**, (**49** #8787) *and* **Grundzüge der Mathematik**, (**49** #8789)
**Burau, Werner** 100 Jahre Erlanger Programm von Felix Klein. (**53** #12833)
**Coons, S. A.** Homogeneous coordinates, projective transformations, and conics. (**58** #7378)
**Cruceanu, Vasile** ★Elemente de algebră liniară şi geometrie. (Romanian) [Elements of linear algebra and geometry] (**50** #7185)
**Engelhard, Rainer** (*with* Engelhard, Renate) ★Lineare Abbildungen, affine Abbildungen, Kegelschnitte. (**53** #5618)
**Engelhard, Renate** *See* **Engelhard, Rainer**, (**53** #5618)
**Fladt, Kuno** (*with* Baur, Arnold) ★Analytische Geometrie spezieller Flächen und Raumkurven. (**55** #3978)
*See also* **Fundamentals of mathematics**, (**49** #8787) *and* **Grundzüge der Mathematik**, (**49** #8789)
**Flegg, H. Graham** ★From geometry to topology. (**57** #13813)
**(Gericke, Helmuth)** *See* **Fundamentals of mathematics**, (**49** #8787) *and* **Grundzüge der Mathematik**, (**49** #8789)
**(Gould, S. H.)** *See* **Fundamentals of mathematics**, (**49** #8787)
**Haruki, Hiroshi** On a metrical theorem in geometry of circles. (**46** #355)
**(Hohenberg, Fritz)** *See* **Fundamentals of mathematics**, (**49** #8787) *and* **Grundzüge der Mathematik**, (**49** #8789)
**Honsberger, Ross** ★Mathematical morsels. (**58** #9950)
**(Klein, Felix)** *See* **Burau, Werner**, (**53** #12833)
**(Kohlmann, Wilmut)** *See* **Engelhard, Rainer; et al.**, (**53** #5618)
**(Kunle, H.)** *See* **Fundamentals of mathematics**, (**49** #8787) *and* **Grundzüge der Mathematik**, (**49** #8789)
**Mărgulescu, George Gr.** *See* **Vrănceanu, Gheorghe Gh.**, (**52** #13875)
**Nöbeling, Georg** ★Einführung in die nichteuklidischen Geometrien der Ebene. (**58** #2581)
**(Penkov, Boyan I.)** *See* **Behnke, Heinrich**, (**53** #12)
**Pickert, Günter** Affine planes. An example of research on geometric structures. (**57** #13675)
*See also* **Fundamentals of mathematics**, (**49** #8787) *and* **Grundzüge der Mathematik**, (**49** #8789)
**(Rau, H.)** *See* **Fundamentals of mathematics**, (**49** #8787) *and* **Grundzüge der Mathematik**, (**49** #8789)
**Rosen, Joe** ★Symmetry discovered. (**55** #12794)
**(Rudolph, Klaus)** *See* **Engelhard, Rainer; et al.**, (**53** #5618)

**(Stepan, Alfred)** *See* **Engelhard, Rainer; et al.**, (**53** #5618)

**(Stumpf, Botho)** *See* **Engelhard, Rainer; et al.**, (**53** #5618)

**(Toussaint, Manfred)** *See* **Engelhard, Rainer; et al.**, (**53** #5618)

**Vidav, Ivan** ★Števila in matematične teorije. (Slovenian) [Numbers and mathematical theories] (**50** #12556)

**Vrănceanu, Gheorghe Gh.** (*with* Mărgulescu, George Gr.) ★Geometrie analitică. (Romanian) [Analytic geometry] (**52** #13875)

**Willmore, T. J.** Whither geometry? (**58** #9978)

**Fundamentals of mathematics** ★Fundamentals of mathematics. (**49** #8787)

**Geometry** *See* **Fundamentals of mathematics**, (**49** #8787) *and* **Grundzüge der Mathematik**, (**49** #8789)

**Grundzüge der Mathematik** ★Grundzüge der Mathematik. Band II: Geometrie. Teil A: Grundlagen der Geometrie. Elementargeometrie. (**49** #8789)

## 50–02 Advanced exposition (research surveys, etc.)

**Kárteszi, Ferenc** ★Introduction to finite geometries. **54** #11156

**Ostrom, Theodore G.** Finite translation planes, an exposition. **57** #1247

**Satyanarayana, Kesiraju** ★Poristic theory, pedal lines, Kantor lines, Kantor points and allied topics. **54** #3565

**(Vekerdi, L.)** *See* **Kárteszi, Ferenc**, **54** #11156

Secondary classifications:

**Efimov, N. V.** (*with* Rozendorn, È. R.) ★Линейная алгебра и многомерная геометрия. (Russian) [Linear algebra and multidimensional geometry] (**57** #3147)
(*with* Rozendorn, È. R.) ★Linear algebra and multidimensional geometry. (**57** #3148)
(*with* Rozendorn, È. R.) ★Algebra liniowa wraz z geometrią wielowymiarową. (Polish) [Linear algebra together with multidimensional geometry] (**57** #3149)

**(Jankovskiĭ, G.)** *See* **Efimov, N. V.; et al.**, (**57** #3148)

**(Józefiak, Tadeusz)** *See* **Efimov, N. V.; et al.**, (**57** #3149)

**Rozendorn, È. R.** *See* **Efimov, N. V.**, (**57** #3147); **Efimov, N. V.**, (**57** #3148) *and* **Efimov, N. V.**, (**57** #3149)

## 50–03 Historical

**Greenberg, Marvin Jay** ★Euclidean and non-Euclidean geometries: development and history. **51** #11262

Secondary classifications:

**(Ampère, André-Marie)** *See* **Sadoun-Goupil, Michelle**, (**58** #27041)

**Bujmola, G.** (*with* Vladika, M. Ĭ.) Descriptive geometry at Lvov University during the Soviet period. (Ukrainian. Russian summary) (**49** #7070)

**Coxeter, Harold Scott MacDonald** The space-time continuum. (German summary) (**58** #10097)
Gauss as a geometer. (German summary) (**58** #15943)

**(Desargues, Girard)** *See* **Vita, Vincenzo**, (**55** #12421)

**(Dimovski, Iv.)** *See* **Roth, Leonard**, (**53** #22)

**Fritsch, Rudolf** ★Zum Feuerbachschen Kreis. (**56** #5160)

**Gaĭduk, Ju. M.** On the history of absolute geometry. (Ukrainian) (**58** #15947)

**(Gauß, Carl Friedrich)** *See* **Coxeter, Harold Scott MacDonald**, (**58** #15943) *and* **Reichardt, Hans**, (**58** #27040)

**German, A. S.** Studies in discrete geometry at the V. I. Lenin Kishinev State University during the past 25 years. (Russian) (**50** #10022)

**Giuculescu, Alexandru** The philosophical background of new trends in the geometry of 17th century. (**58** #21125)

**Hofmann, Joseph Ehrenfried** Drei Sätze von E. W. v. Tschirnhaus über Kreissehnen. (**58** #26893)

**(Legendre, A.-M.)** *See* **Maracchia, Silvio**, (**58** #26972)

**(Malfatti, Gianfrancesco)** *See* **Naitō, Jun**, (**55** #29)

**Malmendier, N.** Eine Axiomatik zum 7. Buch der *Elemente* von Euklid. (**52** #5276)

**Maracchia, Silvio** Legendre e l'incommensurabilità tra lato e diagonale di uno stesso quadrato. (**58** #26972)

**Matvievskaja, G. P.** The prehistory of non-Euclidean geometry (on the 150th anniversary of Lobačevskiĭ's geometry). (Russian. Uzbek summary) (**58** #4813)

**Nádeník, Zbyněk** Geometry and geodesy. (Czech) (**57** #12063)

**Naitō, Jun** Malfatti's problem in sangaku. (Japanese) (**55** #29)

**Pedoe, Daniel** Notes on the history of geometrical ideas. I. Homogeneous coordinates. (**54** #2381)
Notes on the history of geometrical ideas. II. The principle of duality. (**55** #7681)

**Reichardt, Hans** ★Gauss und die nicht-euklidische Geometrie. (**58** #27040)

**Roth, Leonard** Geometry and the scientific imagination. (Italian summary) (**53** #21)
Geometry and scientific imagination. (Bulgarian) (**53** #22)
*See also* **Segre, Beniamino**, (**53** #2598)

**Rozenfel'd, B. A.** ★История неевклидовой геометрии. (Russian) [History of non-Euclidean geometry] (**58** #26688)

**Sadoun-Goupil, Michelle** Esquisse de l'oeuvre d'Ampère en chimie. (English summary) (**58** #27041)

**Segre, Beniamino** Leonard Roth. (**53** #2598)

**Tartiko, S. A.** From the history of the development of graphical statics. (Ukrainian) (**58** #21238)

**(von Tschirnhaus, Ehrenfried Walther)** *See* **Hofmann, Joseph Ehrenfried**, (**58** #26893)

**Vita, Vincenzo** Il teorema sul quadrangolo completo nel Brouillon project di Desargues. (**55** #12421)

**Vladika, M. Ĭ.** *See* **Bujmola, G.**, (**49** #7070)

**Bibliography:**
**Roth, Leonard** *See* **Segre, Beniamino**, (**53** #2598)

**Obituary:**
**Roth, Leonard** *See* **Segre, Beniamino**, (**53** #2598)

## 50–04 Explicit machine computation and programs (not the theory of computation or programming)

**Becker, Erhard** ★Ein Beitrag zur interaktiven Verarbeitung analytisch beschreibbarer Flächen mittels Rechner-Graphik. **58** #12661

**Bouwkamp, C. J.** (*with* Janssen, Paul; Koene, A.) Note on pantactic squares. **58** #18065

**Janssen, Paul** *See* **Bouwkamp, C. J.; et al.**, **58** #18065

**Koene, A.** *See* **Bouwkamp, C. J.; et al.**, **58** #18065

**Monjau, Dieter** Zur gerätetechnischen Realisierung geometrischer Operationen. **58** #2580

**Raymond, J.** LG: a language for analytic geometry. **57** #7341

Secondary classifications:

**Di Comite, Claudio** (*with* Peluso, Roberto) Sulla determinazione di alcuni $k$-archi completi con l'aiuto di una calcolatrice elettronica. (English summary) (**48** #12266)

**Fischer, Michael J.** *See* **Seiferas, Joel I.; et al.**, (**57** #4627)

**Harms, Susanne** (*with* Klix, Wolf-Dieter) Ein Algorithmus zur automatischen Lösung konstruktiver Problemstellungen. (**58** #5101)

**Hosaka, Mamoru** (*with* Kimura, Fumihiko; Kakishita, Naotake) A unified method for processing polyhedra. (**53** #15013)

**Kakishita, Naotake** *See* **Hosaka, Mamoru; et al.**, (**53** #15013)

**Kimura, Fumihiko** *See* **Hosaka, Mamoru; et al.**, (**53** #15013)

**Klix, Wolf-Dieter** *See* **Harms, Susanne**, (**58** #5101)

**McLain, Dermot H.** Computer construction of surfaces through arbitrary points. (**53** #15014)

**Meyer, Albert R.** *See* **Seiferas, Joel I.; et al.**, (**57** #4627)

**Peluso, Roberto** *See* **Di Comite, Claudio**, (**48** #12266)

**Seiferas, Joel I.** (*with* Fischer, Michael J.; Meyer, Albert R.) Separating nondeterministic time complexity classes. (**57** #4627)

**Wu, Wên Chün** On the decision problem and the mechanization of theorem-proving in elementary geometry. (**58** #197)

## 50–06 Collections of papers; proceedings of conferences

**(Arnold, Hans-Joachim)** *See* **Beiträge: Geometrische Algebra**, **57** #10553

**(Benz, Walter)** *See* **Beiträge: Geometrische Algebra**, **57** #10553

**(Klotzek, Benno)** *See* **Grundlagen der Geometrie und algebraische Methoden**, **48** #12227

**(Norden, A. P.)** *See* **Proceedings: Seminar of the Department of Geometry, Kazan University**, **50** #10984

**(Pervikova, V. N.)** *See* **Applied multidimensional geometry**, **48** #12228

**(Quaisser, Erhard)** *See* **Grundlagen der Geometrie und algebraische Methoden**, **48** #12227

**(Scherk, Peter)** *See* **Foundations of geometry**, **52** #15206

**(Strubecker, Karl)** *See* **Geometrie**, **50** #8251

**(Wefelscheid, Heinrich)** *See* **Beiträge: Geometrische Algebra**, **57** #10553

**(Zamorzaev, A. M.)** *See* **Studies in discrete geometry**, **49** #9724

**Applied multidimensional geometry** ★Прикладная многомерная геометрия. (Russian) [Applied multidimensional geometry] **48** #12228

**Beiträge:**
**Geometrische Algebra** ★Beiträge zur geometrischen Algebra. **57** #10553

**Conference:**
**Foundations of Geometry** *See* **Foundations of geometry**, **52** #15206

**Duisburg** *See* **Beiträge: Geometrische Algebra**, **57** #10553

**Foundations of geometry** ★Foundations of geometry. **52** #15206

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**Geometrie** ★Geometrie. **50** #8251

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**Multidimensional geometry** *See* **Applied multidimensional geometry**, **48** #12228

**Proceedings:**
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**Studies in discrete geometry** ★Исследования по дискретной геометрии. (Russian) [Studies in discrete geometry] **49** #9724

**Symposium:**
**Geometrische Algebra** *See* **Beiträge: Geometrische Algebra**, **57** #10553

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**(Gurevič, G. B.)** *See* **Geometry of homogeneous spaces**, (**51** #6603)

**(Val'kov, K. I.)** *See* **Questions of geometric simulation**, (**50** #1462)

**Atti:**
**Convegno di Geometria Combinatoria e sue Applicazioni** ★Atti del Convegno di Geometria Combinatoria e sue Applicazioni (Università degli Studi di Perugia, Perugia, 11–17 settembre 1970). (**48** #8244)

**Centro Internazionale Mathematico Estivo (C.I.M.E.)** *See* **Finite geometric structures and their applications**, (**48** #10839)

**Combinatorial geometry** *See* **Atti: Convegno di Geometria Combinatoria e sue Applicazioni**, (**48** #8244)

**Conference:**

**Geometry** Conference on Geometry. (**52** #6568)

**Convegno:**

**Geometria Combinatoria e sue Applicazioni** *See* **Atti: Convegno di Geometria Combinatoria e sue Applicazioni**, (**48** #8244)

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**Projective geometry** *See* **Finite geometric structures and their applications**, (**48** #10839)

**Questions of geometric simulation** ★Вопросы геометрического моделирования. (Russian) [Questions of geometric simulation] (**50** #1462)

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**Pereira Torres, A.** Une axiomatique pour la géométrie euclidienne. **51** #1579

**Pickert, Günter** Von einer kombinatorischen Fragestellung zur räumlichen Geometrie. **50** #14441

**Prestel, Alexander** *See* **Gupta, H. N.**, **46** #2530 *and* **Gupta, H. N.**, **47** #942

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**Sperner, Emanuel** Wie ist geometrisches Schliessen möglich? Axiomatisierung geometrischen Denkens, aufgezeigt an einem elementargeometrischen Sachverhalt. **58** #18068

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**(Wussing, H.)** *See* **Böhm, Johannes; et al.**, **55** #11139

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**Bandelow, Christoph** On closed additive semigroups in $E^n$. (**45** #2074)

**Beineke, Lowell W.** (*with* Pippert, Raymond E.) Enumerating dissectible polyhedra by their automorphism groups. (**48** #11265)

**de Boor, Carl** (*with* Schoenberg, Isaac Jacob) Unique prime factorization and lattice points. (**49** #4914)

**(Dieudonné, Jean A.)** *See* **Valabrega, Elda Gibellato; et al.**, (**46** #9017)

**García-Frías, Juan** The theory of parallels and the theory of non-Euclidean geometries. (Spanish. English summary) (**57** #17474)

**Heymans, P.** The minimum model of spaces on a quadric. (**45** #5134)

**(Hilbert, David)** *See* **Valabrega, Elda Gibellato; et al.**, (**46** #9017)

**Ignatenko, V. F.** (*with* Leĭbin, A. S.) The orthogonal symmetry planes of surfaces in Euclidean space $E^m$. (Russian) (**45** #5130)

(*with* Leĭbin, A. S.) Planes of symmetry of algebraic surfaces in the space $E^3$. (Russian) (**45** #3402)

**Kunz, Ernst** ★Ebene Geometrie. (**57** #13656)

**Leĭbin, A. S.** *See* **Ignatenko, V. F.**, (**45** #3402) *and* **Ignatenko, V. F.**, (**45** #5130)

**Pasini, Antonio** Congruence relations and weak parallelisms of geometries. (Italian summary) (**57** #7362)

**Pippert, Raymond E.** *See* **Beineke, Lowell W.**, (**48** #11265)

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**Singmaster, David** Some corrections to Carlson's "Determination of Heronian triangles". (**47** #4922)

**Smith, James T.** Orthogonal geometries. I. (**47** #4114)

**Stratopoulos, G. M.** (*with* Wylie, C. Ray) A new series of line involutions in $S_3$. (**45** #5132)

**Valabrega, Elda Gibellato** (*with* Valabrega, Paolo) Dai *Grundlagen der Geometrie* di D. Hilbert all' *Algèbre linéaire et géometrie élémentaire* di J. Dieudonné: I reali di J. Dieudonné. (**46** #9017)

**Valabrega, Paolo** *See* **Valabrega, Elda Gibellato**, (**46** #9017)

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**Boja, N.** The transvections and the noneuclidean movements group. (Romanian summary) **50** #14442

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**Bumcrot, Robert J.** Finite hyperbolic spaces. **49** #6013

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**Götzky, K. Martin** Über ein gruppentheoretisches Axiomensystem für die ebene unitär-hyperbolische Geometrie. **49** #7895

**Kurbanov, N.** Curves of constant width. (Russian. Tajiki summary) **54** #3580

**Kuz′minyh, A. V.** A characterization of Lorentz transformations. (Russian) **53** #1382

**Liebold, Gerhard** Bemerkungen zur Modellierung der (klassischen) elliptischen Ebene. **57** #10554

Über eine Klasse von Modellen der elliptischen Ebene. **58** #7352

**Martin, George E.** ★The foundations of geometry and the non-Euclidean plane. **55** #1209

**Nöbeling, Georg** ★Einführung in die nichteuklidischen Geometrien der Ebene. **58** #2581

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**Strambach, Karl** Sphärische Kreisebene mit dreidimensionaler nichteinfacher Automorphismengruppe. **45** #7572

**Strommer, Julius** Über das Schneiden von Geraden und Zyklen in der absoluten Geometrie. **53** #6399

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**Szybiak, A.** A model of hyperbolic stereometry based on the algebra of quaternions. **51** #11263

**Wernicke, Bernd** Die relative Widerspruchsfreiheit der Lobatschewskischen Geometrie. (Russian and English summaries) **49** #11370

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Secondary classifications:

**Bacon, Phyrne Youens** Desarguesian Klingenberg planes. (**57** #13680)

**Busemann, Herbert** Planes with analogues to Euclidean angular bisectors. (**51** #8961 (E **53** #9042) )

Remark on: "Planes with analogues to Euclidean angular bisectors" (Math. Scand. 36 (1975), 5–11). (**53** #9042)

**Gans, David** ★An introduction to non-Euclidean geometry. (**57** #3961)

**Rabinovič, V. L.** Proof of the consistency of Lobačevskiĭ geometry on the basis of the system of axioms of a school geometry course. (Russian) (**55** #7759)

**Salzmann, Helmut** Zur nicht-euklidischen Geometrie. (**58** #15974)
**(Schmidt, Dirk)** *See* **Smogorževs′kiĭ, O. S.**, (**58** #2578)
**Smogorževs′kiĭ, O. S.** ★Lobatschewskische Geometrie. (**58** #2578)

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**Benz, Walter** Kennzeichnungen von Lorentztransformationen. **58** #12663
A characterization of plane Lorentz transformations. **58** #12664
**Betten, Dieter** 4-dimensionale Translationsebenen mit 8-dimensionaler Kollineationsgruppe. **49** #3652
$C^1$-Wirkungen der hyperbolischen Bewegungsgruppe. **57** #13657
(*with* Ostmann, Axel) Wirkungen und Geometrien der Gruppe $L_2 \times \mathbf{R}$. **58** #12665
**Boltjanskiĭ, V. G.** Equidecomposability of polyhedra, and groups of motions. (Russian) **54** #13703
**Brockhaus, Egbert** Zum Stufenaufbau der Inzidenzstrukturen mit Ähnlichkeitsrelation. (English summary) **58** #18071
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**Ellers, Erich W.** (*with* Karzel, Helmut) Involutory incidence spaces. **47** #5699
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**Ewald, Günther** Über Bewegungen in der absoluten Geometrie. (English summary) **57** #13659
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**Timm, Jürgen** *See* **Heise, Werner**, **45** #4251

Secondary classifications:

**André, Johannes** Über verschiedene Klassen von Unterräumen in Räumen mit nichtkommutativer Verbindung. (**58** #18133)
Zur Geometrie der Frobeniusgruppen. (**58** #18134)
**Benz, Walter** Zur Charakterisierung der Lorentz-Transformationen. (English summary) (**57** #18710)
**Cieślak, Waldemar** Groups of automorphisms of a conus. (Polish and Russian summaries) (**58** #28266)
**Dye, R. H.** Some geometry of triality with applications to involutions of certain orthogonal groups. (**45** #2031)
**Fam Kan′ Zyong** *See* **Kozel, P. T.**, (**58** #16904)
**Götzky, K. Martin** (*with* Johnsen, Karsten) Eine Charakterisierung der endlichen Gruppen, welche bezüglich geeigneter Erzeugendensysteme Hjelmslevgruppen sind. (**50** #4771)
**Günther, Georg** Singular isometries in orthogonal groups. (**57** #3276)
**Heimbeck, Günter** Endliche verallgemeinerte metrische Ebenen mit starren Richtelementen. (**57** #13673)
**Hering, Christoph** On 2-groups operating on projective planes. (**48** #12276)
**Johnsen, Karsten** *See* **Götzky, K. Martin**, (**50** #4771)
**Kozel, P. T.** (*with* Fam Kan′ Zyong) The order of the elements of the symplectic group. (Russian) (**58** #16904)
**Lorimer, Peter** A property of the groups $P\Gamma L(m,q)$, $q>5$. (**47** #1969)
**Mozrzymas, Jan** (*with* Solecki, Andrzej) $R^4$ point groups. (**53** #13434)
**Mwene, Benjamin** On the subgroups of the group $PSL_4(2^m)$. (**53** #13406 (EA **54**) )
**(Peršin, Ja. N.)** *See* **Physical and mathematical sciences**, (**58** #26647a)
**Solecki, Andrzej** *See* **Mozrzymas, Jan**, (**53** #13434)
**Conference:**
**Physical and Mathematical Sciences** *See* **Physical and mathematical sciences**, (**58** #26647a)
**Physical and mathematical sciences** ★Физико-математические науки. Материалы X Научной Конференции (Псков, 1969). Вып. 8. (Russian) [Physical and mathematical sciences. Proceedings of the Tenth Scientific Conference (Pskov, 1969). No. 8] (**58** #26647a)
**Pskov** *See* **Physical and mathematical sciences**, (**58** #26647a)

### 50A20 Algebraic characterizations [See also 06A75, 12K05, 16A76, 16A78, 16A80, 17D05, 17E05, 20N10.]

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**Arnold, Hans-Joachim** Zur Algebrisierung allgemeiner affiner und zugehöriger projektiver Strukturen mit Hilfe eines vektoriellen Kalküls. (**57** #12260)

**Batbedat, André** Préalgèbres contenant un idempotent associatif. (Italian summary) (**56** #5665)

**Bruni, Marcello** Misure euclidee, hermitiane, simplettiche e potenze esterne di uno spazio vettoriale quaternionale. (**46** #9083)

**Buekenhout, Francis** Extensions of polar spaces and the doubly transitive symplectic groups. (**58** #351)

**Cameron, Peter J.** ★Parallelisms of complete designs. (**54** #7269)

**Chen, Yi** The Steiner system $S(3, 6, 26)$. (**46** #3332)

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**De Clerck, Frank** (*with* Thas, Joseph Adolphe) Partial geometries in finite projective spaces. (**58** #10512)

**Edge, W. L.** Klein's encounter with the simple group of order 660. (**46** #9038)

**Freudenthal, H.** On the cardinality of finite Tits geometries. (**58** #21701)

**Goldberg, Karl** Distant coordinates in matrix form. (**58** #7363)

**Havel, Václav** Ternary halfgroupoids and coordinatization. (**46** #286)

**Hsu, C. J.** A note on the decomposition of Wille incidence geometry of grade $n$. (**48** #10917)

**Jung, Fuanglada Riddhagni** Solutions of some systems of equations over a finite field with applications to geometry. (**45** #3365)

**Karzel, Helmut** Kinematische Algebren und ihre geometrischen Ableitungen. (**50** #372)

**Klossek, Sonja** Kommutative Spiegelungsräume. (**53** #10966)

**Lawrence, Peter Ashley** Affine mappings in the geometries of algebras. (**48** #8475)

**Miller, David** New axioms for Boolean geometry. (**58** #16448)

**Pieper-Seier, Irene** Zur Theorie endlicher geschlitzter Inzidenzgruppen. (English summary) (**45** #3584)

**Sachs, David** A note on geometric mappings. (**47** #8334)

**Singmaster, David** On the concept of directed distance. (**48** #8646)

**Smirnova, O. S.** Completeness and decidability of the axiomatic theory $SG$ for spherical geometry. (Russian) (**57** #89)

**Strambach, Karl** Algebraische Geometrien. (**54** #2649)

**Thas, Joseph Adolphe** *See* **De Clerck, Frank**, (**58** #10512)

**Tits, Jacques** ★Buildings of spherical type and finite BN-pairs. (**57** #9866)
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**Vakarelov, Dimit″r** Desarguesian systems. (Bulgarian. German summary) (**46** #8937)

**Wagner, Ascher** Groups generated by elations. (**49** #10798)

**Wähling, Heinz** Beispiel eines projektiven Fastkörpers mit nicht-projektiven Teilfastkörpern. (**56** #2980)

**Wolff, Gerhard** Ein Struktursatz für affine Algebren. (**58** #12691)

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**Benz, Walter** Ein gruppentheoretisches Modell der pseudo-euklidischen (Minkowskischen) Geometrie. **45** #7578

**Carfagna D'Andrea, Antonella** Sulla rappresentazione del piano di De Sitter su un piano di Minkowski. (English summary) **53** #1384

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**Hartvigson, Zenas R.** A non-Desarguesian space geometry. **50** #8259

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**Metz, Rudolf** Isomorphismen $n$-stufiger Geometrien. **48** #1016

**Mirescu, Nicolae** Some observations relative to the axonometric design. (Romanian. Russian, English, French and German summaries) **46** #2532

**Pomilio, Isabella Anastasia** Rappresentazione sulle quadriche di una classe di spazi metrici. (English summary) **50** #10987

**Putto, Agostino** Un nuovo modello di geometria iperbolica. (English summary) **51** #6550

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**Smith, James T.** Metric geometries of arbitrary dimension. **49** #7897

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**Doraczyńska, Elżbieta** A complete theory of the midpoint operation. (Russian summary) (**51** #5281)

**Makowiecka, Hanna** The theory of bi-proportionality as a geometry. (Russian summary) (**52** #5409)
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**McKee, Terry A.** Logical and graph-theoretic characterizations of the self-dual sentences of projective geometry. (**51** #10069)

**Schwabhäuser, Wolfram** (*with* Szczerba, Lesław W.) An affine space as union of spaces of higher dimension. (**53** #5290)

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(*with* Szczerba, Lesław W.) Errata to the paper: "Relations on lines as primitive notions for Euclidean geometry" (Fund. Math. **82** (1974/75), 347–355). (**51** #5282)

**Sullivan, Theodore F.** The name solid as primitive in projective geometry. (**45** #8516)

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## 50Bxx Euclidean geometry (including equiform geometry)

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**Jones, A. S.** An elementary theorem for simple polygons. **58** #7357

**Jones, Dixon`** A double butterfly theorem. **53** #1385

**Karzel, Helmut** Some recent results on incidence groups. **53** #3846

**Kiriljuk, L. V.** A family of triangles with a common base and a constant ratio of the lateral sides. (Russian) **57** #17479

**Kmet, Andrej** Graphic solution of cubic equations with quadratic parabola. (Slovenian. English summary) **56** #6541

**Knight, G. H.** Morley's theorem. **54** #3568

**Kortenska, V.** A certain method of dividing the lines of the plane into two classes. (Bulgarian. Russian and French summaries) **46** #8021

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**Krames, Josef** Eine bemerkenswerte Eigenschaft der Viviani-Kurve. **52** #15211

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(*with* Jadgarov, Dž. Ja.) Determination of the geometric locus of the centers of ellipses belonging to a set of planes. (Russian) **58** #30706

**O'Hara, F.** A 24-point sphere for the orthocentric tetrahedron. **58** #7359

**Olson, Roy C.** On the six conics problem. **50** #3092

**Pahomova, V. A.** Construction of the line of the intersection of prisms and pyramids by the "method of faces". (Russian) **52** #15213

**Parry, C. F.** (*with* Longuet-Higgins, Michael S.) Reflections. **58** #30707

**Pedoe, Daniel** The ellipse as an hypotrochoid. **53** #9018

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**Plotnikova, M. M.** Solution of problems by the method of contiguous correspondences without the use of the axis of contiguity. (Russian) **52** #15214

**Rameswar Rao, D.** ★Various interesting problems of research in the Euclidean plane geometry. **57** #7348

**Sahadevan, P. V.** Evolution of '$N$' polar curves by extension of focal points (by more than two) of an ellipse. **50** #8260

**Selmer, Ernst S.** Remarks on an angle construction. (Norwegian. English summary) **48** #12232

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**Silver, Murray** On the constructibility of rational angles. **57** #17480
**Simons, William** (*with* Trapp, George E., Jr.) Separating points by spheres. **50** #8261
**Strommer, Julius** Konstruktionen mit dem rechten und schiefen Zeichnenwinkel in der absoluten Geometrie. **51** #13845
**Struik, Saly Ruth** Flächengleichheit und Cavalierische Gleichheit von Dreiecken. **58** #23972
**Subramanyam, S. S.** Oblique pedal lines of cyclic polygons. II. **48** #12233
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**Sutorihin, G. N.** Construction of a tangent to second order curves by using homology transformations. (Russian) **52** #15215
**Szabó, J.** Eine Methode zur Lösung von metrischen Aufgaben der Perspektive (Zentralaxonometrie). **57** #10559
**Trapp, George E., Jr.** *See* **Simons, William**, **50** #8261
**Vel′min, V. P.** Approximate construction of a given angle by means of the points of a square lattice. (Russian) **57** #7349
**Wenninger, Magnus J.** ★Polyhedron models. **57** #7350a
  ★Модели многогранников. (Russian) [Polyhedron models] **57** #7350b
**Wilker, J. B.** Russian dolls. **58** #30709
**Wunderlich, Walter** Polygones orthogonaux inscrits dans une ellipse. **46** #4340
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**Yamaki, Jusuke** On the hyperboloidic position of four lines. (Japanese. English summary) **53** #11479

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**Amir-Moéz, Ali R.** (*with* Hamilton, J. D.) Hippocrates (*Ippokraths*). (**56** #2722)
**Collings, S. N.** Reflections on reflections. (**57** #3968)
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**Conant, D. R.** (*with* Beyer, W. A.) Generalized Pythagorean theorem. (**49** #3087)

**Fabricius-Bjerre, Fr.** On a space curve related to a given cycloid. (Danish. English summary) (**48** #1057)

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**Melzak, Z. A.** (*with* Forsyth, J. S.) Polyconics. I. Polyellipses and optimization. (**56** #7188)

**Michiwaki, Yoshimasa** (*with* Hatta, Kenji; Hamada, Toshio; Ōyama, Makoto) For a problem on elementary geometry. (**47** #8224)

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**Rothschild, B. L.** *See* **Graham, Ronald L.; et al.**, (**48** #11024)

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**Tripp, C. E.** *See* **Foster, W.; et al.**, (**56** #5308)

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**Zaks, Joseph** The chair theorem. (**47** #9605)

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## 50B20 Geometry of circles

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**Ml"čkova, D. N.** (*with* Raĭčeva, O. B.; Sjarova, A. B.) The mapping of a spherical hypercone and its sections from certain spaces into $E^4$. (Bulgarian. Russian and German summaries) **53** #6406c

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**Subramanyam, S. S.** On certain chains. **45** #7573
**Tyrrell, J. A.** (*with* Powell, M. T.) A theorem in circle geometry. **45** #9237
  *See also* **Evelyn, Cecil John Alvin; et al., 54** #1066
**Volenec, Vladimir** An axiomatic foundation of the circle plane with orthogonality. (Serbo-Croatian summary) **47** #7574
**Walker, Richard** Monge's theorem in many dimensions. **58** #18087
**Zylbertrest, S.** *See* **Doraczyńska, Elżbieta, 58** #18081

Secondary classifications:

**Blind, Gerd** Überdeckung der Ebene durch inkongruente Kreise. (**51** #1616)
**Fritsch, Rudolf** ★Zum Feuerbachschen Kreis. (**56** #5160)
**Hamada, Toshio** *See* **Michiwaki, Yoshimasa; et al.,** (**50** #1811) *and* **Mishiwaki, Yoshimasa; et al.,** (**57** #2817)
**Hatta, Kenji** *See* **Michiwaki, Yoshimasa; et al.,** (**50** #1811)
**Michiwaki, Yoshimasa** (*with* Hamada, Toshio; Hatta, Kenji; Ōyama, Makoto) Some problems on elementary geometry. (**50** #1811)
  (*with* Hamada, Toshio; Ōyama, Makoto) On a mathematical problem for an anniversary of Takakazu Seki's death. (Japanese. English summary) (**57** #2817)
**Naoi, Isao** A problem in wasan: inscribing five circles. (Japanese) (**58** #21025)
**Ōyama, Makoto** *See* **Michiwaki, Yoshimasa; et al.,** (**50** #1811) *and* **Mishiwaki, Yoshimasa; et al.,** (**57** #2817)
**Pomilio, Isabella Anastasia** Il piano di Möbius e lo spazio di de Sitter. (English summary) (**53** #4872)
**(Seki, Takakazu)** *See* **Mishiwaki, Yoshimasa; et al.,** (**57** #2817)
**Wunderlich, Walter** Ein kubischer Hyperzykel. (**53** #10816)

## 50B25 Euclidean and equiform geometry over fields other than the reals

**Aleksandrova, G. A.** (*with* Demidova, I. N.) The geometry of normal 2-chains of complex and double Euclidean planes. (Russian) **58** #18088
**Demidova, I. N.** *See* **Aleksandrova, G. A., 58** #18088
**Dicuonzo, Vincenzo** On Minkowski planes of even order. (Italian summary) **53** #3849
**Farrahi, Bijan** On isometries of planes, with the Euclidean-like metric, over Galois fields. **52** #4097
  On isometries of finite Euclidean planes. **53** #3850
  On the group of transformations of constructible Euclidean planes which preserve a single distance. **57** #7351
**Fešin, G. M.** Motions in $n$-point planimetry of Euclidean type over fields of a given characteristic. (Ukrainian. Russian summary) **54** #11158
  Transformation of the component pairs of the measure of three points in three-point planimetry of Euclidean type. (Ukrainian. Russian summary) **54** #11159
**Freudenthal, H.** New non-Euclidean geometry. (Dutch) **58** #7362
**Kneser, Martin** Witts Satz für quadratische Formen über lokalen Ringen. **46** #9849
**Lingenberg, Rolf** Charakterisierung minkowskischer Ebenen durch Beweglichkeitsaxiome. **54** #1067
**Prestel, Alexander** Euklidische Geometrie ohne das Axiom von Pasch. **49** #7899
**Rozenfel′d, B. A.** (*with* Vyplavina, R. P.; Zernova, T. A.) Elliptic lines and Euclidean planes over tensor products of fields. (Russian) **55** #1211
**Ulshöfer, Klaus** Zur Geometrie über dem Körper der rationalen Zahlen. **57** #7352
**Vyplavina, R. P.** *See* **Rozenfel′d, B. A.; et al., 55** #1211
**Wette, Eduard** A Euclidian solution of endometric figures. I. **58** #30711
**Zernova, T. A.** *See* **Rozenfel′d, B. A.; et al., 55** #1211

Secondary classifications:

**Hering, Christoph** On linear groups which contain an irreducible subgroup of prime order. (**51** #8279)

## 50B30 Regular figures, division of space [See also 20H15.]

**Alexanderson, G. L.** (*with* Wetzel, John E.) Dissections of a plane oval. **58** #23976
**Baltag, I. A.** (*with* Garit, V. P.) A complete derivation of the Fedorov groups of the pseudoeuclidean plane. (Russian) **51** #6553
**Baranovskiĭ, E. P.** A certain theorem on $L$-partitions of lattices of points. (Russian) **47** #7575
**Böhm, Johannes** Einige kombinatorisch-topologische Eigenschaften von allgemeinen $r$-dimensionalen Orthoschemen. **50** #5604
**Bottema, Oene** Pentagons with equal sides and equal angles. **53** #3851
**Brun, Viggo** Some theorems on the partitioning of the sphere, inspired by virus research. (Norwegian. English summary) **50** #1100
**Budinský, Bruno** Zum Petrschen Satz. (Czech summary) **46** #6140
  (*with* Nádeník, Zbyněk) Mehrdimensionales Analogon zu den Sätzen von Menelaos und Ceva. (Czech summary) **46** #6141
  Sätze von Menelaos und Ceva für Vielecke im sphärischen $n$-dimensionalen Raum. (Czech summary) **46** #6142
**Callahan, Francis P.** Morley polygons. **57** #10563
**Chilton, Bruce L.** Shadows of four-dimensional polytopes. **46** #777
**Conway, John Horton** (*with* Coxeter, Harold Scott MacDonald) Triangulated polygons and frieze patterns. **57** #1254
  (*with* Coxeter, Harold Scott MacDonald) Triangulated polygons and frieze patterns. **57** #1255
**Coxeter, Harold Scott MacDonald** The role of intermediate convergents in Tait's explanation for phyllotaxis. **45** #4255
  ★Regular polytopes. **51** #6554
  ★Regular complex polytopes. **51** #6555
  (*with* Shephard, Geoffrey C.) Regular 3-complexes with toroidal cells. **55** #11140
  *See also* **Conway, John Horton, 57** #1254 *and* **Conway, John Horton, 57** #1255
**Debrunner, Hans E.** Zerlegungsrelationen zwischen regulären Polyedern des $E^d$. **58** #18089
**Delone, B. N.** (*with* Galiulin, R. V.; Štogrin, M. I.) The types of Bravais lattices. (Russian) **54** #1068
  (*with* Štogrin, M. I.) A simplification of the proof of the Schönflies theorem. (Russian) **51** #6556
  (*with* Dolbilin, N. P.; Štogrin, M. I.; Galiulin, R. V.) A local test for the regularity of a system of points. (Russian) **53** #6407
**Dolbilin, N. P.** Local properties of discrete regular systems. (Russian) **54** #8428
  *See also* **Delone, B. N.; et al., 53** #6407
**Dragomir, Virgil** (*with* Gheorghiu, Adrian) Genèse et construction des polyèdres semi-réguliers. (English summary) **48** #9537
**Eggleton, Roger B.** Where do all the triangles go? **51** #1584
**Fejes Tóth, László** ★Lagerungen in der Ebene auf der Kugel und im Raum. **50** #5603
**Franz, Wolfgang** Dreidimensionale und mehrdimensionale Geometrie. Die regulären Polytope. **46** #9850
**Frei, Václav** On Hilbert's eighteenth problem. (Czech) **58** #12676
**Galiulin, R. V.** *See* **Delone, B. N.; et al., 53** #6407 *and* **Delone, B. N.; et al., 54** #1068
**Garit, V. P.** *See* **Baltag, I. A., 51** #6553
**Gheorghiu, Adrian** *See* **Dragomir, Virgil, 48** #9537
**Gilpin, Michael** Symmetries of the trihexaflexagon. **54** #3572
**Goldberg, Michael** Three infinite families of tetrahedral space-fillers. **49** #7900
**Grünbaum, Branko** Regular polyhedra—old and new. **57** #7353
  (*with* Shephard, Geoffrey C.) Tilings by regular polygons. Patterns in the plane from Kepler to the present, including recent results and unsolved problems. **58** #18090
  (*with* Shephard, Geoffrey C.) The eighty-one types of isohedral tilings in the plane. **56** #6542
**Harazišvili, A. B.** Perfectly symmetric configurations. (Russian. Georgian and English summaries) **57** #10564
**Harborth, Heiko** Prescribed numbers of tiles and tilings. **57** #7355
**Haruki, Hiroshi** An equivalent property to Ivory's theorem from the standpoint of conformal mapping. **57** #13668
**Hirschfeld, J. W. P.** A configuration of lines in three dimensions. **47** #9405
**Ignatenko, V. F.** (*with* Leĭbin, A. S.) The algebraic surfaces in $E^4$ that have the symmetry of a regular four-dimensional simplex and a regular four-dimensional 600-tope. (Russian) **46** #5339
**Jachanová, Jaroslava** Characterization of epimorphisms of nets by normal decompositions. (Czech and Russian summaries) **58** #30712
**Kárteszi, Ferenc** Su una proprietà combinatoria dei poligoni regolari. (English summary) **54** #3573
**Killingbergtrø, Hans Georg** Remark on Brun's spherical tesselations. (Norwegian. English summary) **56** #1192
**Korchmáros, Gabriele** Estensioni del concetto di "poligono affin regolare" ad un qualunque piano affine. (English summary) **58** #18091
**Kornienko, N. M.** (*with* Matveev, G. V.; Metel′skiĭ, N. N.; Tyškevič, R. I.) Partitions of polygons. (Russian. English summary) **58** #12677
**Kratky, K. W.** The area of intersection of $n$ equal circular disks. **58** #12678
**Krötenheerdt, Otto** (*with* Reichstein, Jürgen) Über stabile reguläre Kreispackungen $n$-ter Ordnung mit speziellen Untersuchungen für $n=2$. **58** #18092
**Leĭbin, A. S.** *See* **Ignatenko, V. F., 46** #5339
**Loeb, Arthur L.** ★Space structures. **56** #9447
**Lungu, A. P.** (*with* Orleanskaja, E. A.; Palistrant, A. F.) Interpretation of mean groups of $P$-symmetry. (Russian) **58** #23977
**Makai, Endre, Jr.** Subdivision of planar sets into smaller parts. (Hungarian. English summary) **50** #1101
**Matveev, G. V.** *See* **Kornienko, N. M.; et al., 58** #12677
**Medjanik, A. I.** A regular simplex inscribed in the cube. (Russian) **48** #12242
**Meier, Christoph** Zerlegungsähnlichkeit von Punktmengen. **49** #3659
**Merkel, Janusz** Sur le pavage de l'espace euclidien à 3 dimensions avec des cubes tronqués tordus, des icosaèdres et des tétraèdres. (Polish and Russian summaries) **50** #14454
**Metel′skiĭ, N. N.** *See* **Kornienko, N. M.; et al., 58** #12677
**Meyer, Walter** Maximum face size in an arrangement of curves. **47** #9406

**Meyer, Werner** (*with* von Randow, Rabe) Ein Würfelschnittproblem und Bernoullische Zahlen. **45** #2569
**Molnár, Emil** Sui mosaici dello spazio di dimensione $n$. (German summary) **46** #8022
**Nádeník, Zbyněk** *See* **Budinský, Bruno**, **46** #6141
**Orleanskaja, E. A.** *See* **Lungu, A. P.; et al.**, **58** #23977
**Palistrant, A. F.** *See* **Lungu, A. P.; et al.**, **58** #23977
**Pawley, G. S.** The 227 triacontahedra. **53** #3852
**Pelling, M. J.** Regular simplices with rational vertices. **56** #3736
**Pugh, Anthony** ★Polyhedra: a visual approach. **56** #9448
**von Randow, Rabe** *See* **Meyer, Werner**, **45** #2569
**Reichstein, Jürgen** *See* **Krötenheerdt, Otto**, **58** #18092
**Ševčuk, F. Ja.** Two-dimensional pseudo-Euclidean Belov groups. (Russian) **58** #23978
**Shephard, Geoffrey C.** Space-filling zonotopes. **51** #1585
*See also* **Coxeter, Harold Scott MacDonald**, **55** #11140; **Grünbaum, Branko**, **56** #6542 *and* **Grünbaum, Branko**, **58** #18090
**Skilling, J.** The complete set of uniform polyhedra. **51** #1586
**Šmakal, Stanislav** Regular polygons. **58** #30713
**Smith, Anthony** Uniform compounds and the group $\mathfrak{A}_4$. **48** #12243
Two compounds of antiprisms in $R^4$. **53** #3853
**(Smith, Cyril Stanley)** *See* **Loeb, Arthur L.**, **56** #9447
**Sopov, S. P.** A certain class of homogeneous polyhedra. (Russian) **48** #1019
A proof of the completeness on the list of elementary homogeneous polyhedra. (Russian) **48** #4895
**Stammler, Ludwig** Zwei elementargeometrische Zerlegungssätze. **45** #9236
**Stein, Sherman K.** Tiling space by congruent polyhedra. **50** #10988
The planes obtainable by gluing regular tetrahedra. **58** #12679
**Stenman, Folke** Periodic orbits in a tetrahedral mirror. **52** #6558
**Štogrin, M. I.** ★Правильные разбиения Дирихле-Вороного для второй триклинной группы. (Russian) [Regular Dirichlet-Voronoĭ partitions for the second triclinic group] **51** #6557
The Bravais, Voronoĭ and Delone classifications of four-dimensional lattices. (Russian) **50** #8267
★Regular Dirichlet-Voronoĭ partitions for the second triclinic group. **51** #11265
*See also* **Delone, B. N.**, **51** #6556; **Delone, B. N.; et al.**, **53** #6407 *and* **Delone, B. N.; et al.**, **54** #1068
**Tyškevič, R. I.** *See* **Kornienko, N. M.; et al.**, **58** #12677
**Usiskin, Zalman** (*with* Wayment, Stanley G.) Partitioning a triangle into 5 triangles similar to it. **45** #9246
**Vivarelli, Maria Dina** Su una relazione caratteristica dei poliedri semiregolari archimedei e convessi. **51** #6558
**Volenec, Vladimir** Die Summe der Projektionen eines Vektors auf die Seiten eines affin-regulären Polytops in affinen Räumen. (Serbo-Croatian summary) **47** #9407
**Wayment, Stanley G.** *See* **Usiskin, Zalman**, **45** #9246
**Wells, A. F.** ★Three-dimensional nets and polyhedra. **57** #7354
**Wetzel, John E.** *See* **Alexanderson, G. L.**, **58** #23976
**Wollny, Wolfgang** Die 36 regulären Parketts mit dem Quadratnetz. **58** #30714
**Zabolotnyĭ, P. A.** On the generalization of the V. I. Miheev homology groups. (Russian) **51** #6559
**Proceedings of the Steklov Institute of Mathematics** *See* **Štogrin, M. I.**, **51** #11265

Secondary classifications:

**Artem′ev, S. V.** Antisymmetry of finite figures. (Russian) (**52** #3356)
**Bantegnie, Robert** Étalements cristallographiques. (**58** #5533)
**Becker, William** Formulating polyhedral nets. (**55** #11147)
**Bitner, James** Tiling $5n\times 12$ rectangles with $Y$-pentominoes. (**55** #149)
**Bruckner, Gottfried** Über $n$-Ecke. (**49** #1322)
**Collatz, Lothar** Einige Beziehungen zwischen Graphen, Geometrie und Kombinatorik. (English summary) (**55** #187)
Graphen bei Ornamenten und Verzweigungsdiagrammen. (English summary) (**57** #5813)
**Coxeter, Harold Scott MacDonald** ★Twisted honeycombs. (**46** #3639)
The equianharmonic surface and the Hessian polyhedron. (**51** #5605)
**Eggleton, Roger B.** Tiling the plane with triangles. (**48** #10977)
**Florian, A.** (*with* Florian, Helmut) Reguläre hyperbolische Mosaike und Newtonsche Zahlen. III. (**54** #8454)
Reguläre hyperbolische Mosaike und Newtonsche Zahlen. (**51** #6598)
(*with* Florian, Helmut) Reguläre hyperbolische Mosaike und Newtonsche Zahlen. II. (**52** #1529)
**Florian, Helmut** *See* **Florian, A.**, (**52** #1529) *and* **Florian, A.**, (**54** #8454)
**Galjarskiĭ, È. I.** Mosaics for the two-dimensional groups of symmetry and antisymmetry of similarity. (Russian) (**51** #3326)
**Gauß, Carl Friedrich** Clarification of the possibility of constructing a 17-gon. (Russian) (**58** #21207)
**Goldberg, Michael** The space-filling pentahedra. (**46** #6169)
Several new space-filling polyhedra. (**57** #10604)
**Golubev, S. Ja.** A certain property of lattices that relates polyhedra of the $L$- and $V$-subdivisions of the lattices. (Russian) (**55** #2770)
**Green, P. J.** (*with* Sibson, Robin) Computing Dirichlet tessellations in the plane. (**58** #5300)
**Grünbaum, Branko** (*with* Shephard, Geoffrey C.) Perfect colorings of transitive tilings and patterns in the plane. (**58** #313)
**Hanf, William** Nonrecursive tilings of the plane. I. (**51** #110)
**Holden, Herbert L.** Fibonacci tiles. (**50** #9773)
**Hollander, David H.** An unexpected two-dimensional space-group containing seven of the twelve basic solutions to the eight queens problem. (**55** #3107)
**Ignatenko, V. F.** (*with* Leĭbin, A. S.) General equation of an algebraic surface with the symmetry of the regular 600-tope in the space $E^4$. (Russian) (**48** #6110)
**Jessen, Børge** Zur Algebra der Polytope. (**50** #5636)
**Krepl, Roman** Certain connections between groups and nets. (Czech) (**53** #5797)
**(Krutikova, M. V.)** *See* **Gauß, Carl Friedrich**, (**58** #21207)
**Leĭbin, A. S.** *See* **Ignatenko, V. F.**, (**48** #6110)
**Linhart, Johann** Ein reguläres hyperbolisches Maximalmosaik. (**56** #1206)
**Molnár, J.** Diamond polyhedra. I. Simple diamond polyhedra. (**58** #30748)
**Mürner, P.** Zwei Beispiele zur Zerlegungsgleichheit 4 dimensionaler Polytope. (**50** #8303)
**Myers, Dale** Nonrecursive tilings of the plane. II. (**51** #111)
**Oates-Williams, Sheila** (*with* Street, Anne Penfold) The seven friezes and how to colour them. (**58** #16908)
**(Ožigova, E. P.)** *See* **Gauß, Carl Friedrich**, (**58** #21207)
**Palistrant, A. F.** *See* **Zamorzaev, A. M.**, (**51** #3327)
**(von der Pfalz, Ruprecht)** *See* **Scriba, Christoph J.**, (**58** #15905)
**Reingold, Edward M.** *See* **Yao, Andrew Chi Chih; et al.**, (**56** #5416)
**Salihov, G. N.** Cubature formulae for a hypersphere that are invariant with respect to the group of the regular 600-gon. (Russian) (**53** #11978)
**Sands, Bill** *See* **Yao, Andrew Chi Chih; et al.**, (**56** #5416)
**Schattschneider, Doris J.** Tiling the plane with congruent pentagons. (**58** #12735)
**Scriba, Christoph J.** Das Problem des Prinzen Ruprecht von der Pfalz. (**58** #15905)
**Seifert, Herbert** Komplexe mit Seitenzuordnung. (**52** #4100)
**Shephard, Geoffrey C.** Additive frieze patterns and multiplication tables. (**58** #16353)
*See also* **Grünbaum, Branko**, (**58** #313)
**Sibson, Robin** *See* **Green, P. J.**, (**58** #5300)
**Stein, Sherman K.** Algebraic tiling. (**49** #4819)
**Street, Anne Penfold** *See* **Oates-Williams, Sheila**, (**58** #16908)
**Sunday, J. G.** Hypergraphs and abstract polygons. (**54** #177)
**Vinberg, Ernest B.** Discrete linear groups that are generated by reflections. (Russian) (**46** #1922)
**Wang, Hao** Notes on a class of tiling problems. (**51** #109)
**Wollny, Wolfgang** Die Fundamentalbereichstypen der Translationsgruppe $p1$. (**50** #10112)
**Yao, Andrew Chi Chih** (*with* Reingold, Edward M.; Sands, Bill) Tiling with incomparable rectangles. (**56** #5416)
**Zamorzaev, A. M.** (*with* Palistrant, A. F.) The two-dimensional compound symmetry and antisymmetry groups. (Russian) (**51** #3327)
★Теория простой и кратной антисимметрии. [The theory of simple and multiple antisymmetry] (**58** #5965)
**Zenkin, O. V.** The analytic description of geometric shapes. (Russian. English summary insert) (**45** #7003)

### 50B35 Other groups generated by reflections

**Botsch, Otto** Ein reduziertes Erzeugenden-System der Kongruenzgruppe in der Ebene. **49** #6018
Die Vierfach-Spiegelungen an Geraden. **52** #1505
**Gucul, I. S.** *See* **Zamorzaev, A. M.; et al.**, **51** #6561
**Lungu, A. P.** *See* **Zamorzaev, A. M.; et al.**, **51** #6561
**Mielniczuk, Wiesław** (*with* Zabilski, Jerzy) Isometries as compositions of symmetries with axes belonging to the sum of a pencil and a direction. (Polish) **56** #13111
**Salow, Edzard** Einbettung von Hjelmslev-Gruppen in orthogonale Gruppen über kommutativen Ringen. **51** #6560
Endliche Prä-Hjelmslev-Gruppen. **58** #12680
**Zabilski, Jerzy** *See* **Mielniczuk, Wiesław**, **56** #13111
**Zamorzaev, A. M.** (*with* Gucul, I. S.; Lungu, A. P.) On the theory and classification of quasisymmetries. (Russian) **51** #6561

Secondary classifications:

**Eaton, Morris L.** (*with* Perlman, Michael D.) Reflection groups, generalized Schur functions, and the geometry of majorization. (**56** #3211)
**Perlman, Michael D.** *See* **Eaton, Morris L.**, (**56** #3211)
**Stölting, Rolf** Über endliche Hjelmslev-Gruppen. (**49** #418)
**Teirlinck, Luc** Planes and hyperplanes of 2-coverings. (**58** #5285)

### 50B99 None of the above, but in this section

**Dimova, Stefka** (*with* Sendov, Blagovest H.) Nets of curves in the plane. (Bulgarian) **57** #13669
**Fempl, Stanimir** Über spezielle Eulerkegeln. **46** #4342
**Georgiev, Slavi** The relative image of a plane with respect to a plane in multidimensional space. (Bulgarian. Russian and French summaries) **48** #12244
**Goldberg, Karl** Distant coordinates in matrix form. **58** #7363
**Harazišvili, A. B.** A characterization of $rt$-sets in Euclidean spaces. (Russian. Georgian and English summaries) **57** #3972
**Hatipov, A. È.-A.** Tensor methods in analytic geometry. (Russian) **57** #3973
**Hohenberg, Fritz** Dreiecke zweiter Art. (Serbo-Croatian summary) **57** #10565
**Iwata, Shikō** Generalizations of Steiner's contact circle theorem to the $n$-dimensional space. (Japanese summary) **46** #4343
**Kireĭtov, V. R.** Some geometric problems of surface illumination. (Russian) **58** #7364
**Kleven, D. J.** Morley's theorem and a converse. **57** #7356
**Krames, Josef** Über die Loxodromen vierter Ordnung auf Kreisringflächen. **46** #5336
**Mandan, Sahib Ram** On a Gerber's conjecture. (Italian summary) **57** #3974
**Ramachandra, K. V.** Extension of de Moivre's theorem. **58** #12682
*See also* **Ramesan, T.**, **58** #12681
**Ramesan, T.** (*with* Ramachandra, K. V.) 4-D simplex functions. **58** #12681
**Sendov, Blagovest H.** *See* **Dimova, Stefka**, **57** #13669
**Weissbach, Bernulf** Ausbohrung von Rhomben. **58** #23979

Secondary classifications:

**Baxter, Douglas J.** (*with* De Temple, Duane W.) Polygonal roulettes. (**57** #10562)
**Bottema, Oene** Eine dem Plückerschen Konoid zugeordnete Strahlenkongruenz.

(Serbo-Croatian summary) (**46** #2559)

**Császár, Ákos** Angles and circular functions. (**58** #28330)

**Davies, Roy O.** Partitioning the plane into denumberably many sets without repeated distances. (**45** #3662)

**Daykin, David E.** Triangle contractive self maps of the plane. (**58** #18390)

**De Temple, Duane W.** *See* **Baxter, Douglas J.**, (**57** #10562)

**Djad′kov, Sergej** Spaces and transforms in systems theory. (Russian) (**58** #26195)

**Goldberg, Michael** New rectifiable tetrahedra. (**50** #8302 (EA **51**) )

**Meyer, Walter** On ordinary points in arrangements. (**52** #148)

**Natucci, Alpinolo** L'evoluzione dell'insegnamento della matematica elementare nell'ultimo secolo. (**45** #8488)

**Nef, Walter** ★Beiträge zur Theorie der Polyeder. (**58** #18152)

**Schiller, John** Perceptron order for cylindrical, polar, and spherical connectivity. (**52** #9720)

## 50Cxx Other metric geometries

Secondary classifications:

**Valentine, Joseph E.** (*with* Wayment, Stanley G.) Metric characterizations of hyperbolic and euclidean spaces. (**48** #12474)

**Wayment, Stanley G.** *See* **Valentine, Joseph E.**, (**48** #12474)

### 50C05 Elliptic and hyperbolic, general

**Abbasov, N. T.** Ranks of elliptic spaces over algebras of alternions and antialternions. (Russian. Azerbaijani summary) **53** #3854

(*with* Zamahovskiĭ, M. P.) Elliptic spaces over quasisimple algebras. (Russian. Azerbaijani summary) **50** #14455

**Andalafte, Edward Z.** *See* **Valentine, Joseph E.**, **45** #2558

**Apostolova, M. P.** Metric problems in hyperbolic space. (Bulgarian. Russian and French summaries) **53** #3857

*See also* **Petrov, Georgi**, **53** #3856

**Baumann, Heribert** (*with* Schwabhäuser, Wolfram) Eine Vereinfachung des hyperbolischen Parallelenaxioms. **45** #1034

**Beardon, Alan F.** The geometry of discrete groups. **57** #13670

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**Strambach, Karl** Der von Staudtsche Standpunkt in lokal kompakten Geometrien. (**57** #10557)

## 50D50 Geometries of other space elements

**Artzy, Rafael** Minkowski parallel-translation planes and their coordinatization. **58** #24000
**Bachmann, Friedrich** Hjelmslev planes. **50** #11026
**Bachmann, Otto** Über eine Klasse verallgemeinerter affiner Räume. (English summary) **51** #11277
**Bălan, Trandafir** Observations on superadditive functionals. (Romanian. English summary) **48** #12286
**Bolotin, V. R.** An application of the calculus of symmetries to the proof of theorems in plane flag geometry. (Russian) **57** #3995
**Buchanan, Thomas** (*with* Hähl, Hermann) The transposition of locally compact, connected translation planes. **58** #12715
**Chen, Yi** A characterization of some geometries of chains. **49** #3682
**Dugas, Manfred** Einer Kennzeichnung der endlichen desarguesschen Hjelmslev-Ebenen. **54** #8446
**Hähl, Hermann** *See* **Buchanan, Thomas**, **58** #12715
**Havel, Václav** Über die Bestimmung eines Gewebeepimorphismus durch das Urbild eines nichtsingulären Punktes. **54** #1081
**Herzer, Armin** Eine Klasse von Geometrien mit transitiver Translationsgruppe. **57** #17498
**Langov, Anani** Introduction of an angular metric in biaxial space by means of the angle between two spheroids. (Bulgarian. German summary) **58** #2601
**Leißner, Werner** Barbilianbereiche. **57** #17499
**Niče, Vilko** Das koaxiale Nullraumbüschel. (Serbo-Croatian summary) **45** #5854
**Stern, Manfred** Simplicity in incidence geometries of grade *n*. **58** #12716

Secondary classifications:

**Grauert, Hans** Statistische Geometrie. Ein Versuch zur geometrischen Deutung physikalischer Felder. (**58** #25627)
**Longuet-Higgins, Michael S.** Inversive properties of the plane *n*-line, and a symmetric

figure of 2×5 points on a quadric. (**52** #8139)

**Neifel'd, È. G.** Geometry of a variety of *k*-planes of a generalized biplanar space. (Russian) (**45** #5903)

### 50D99 None of the above, but in this section

**Akušskiĭ, I. Ja.** (*with* Kazangapov, A. N.) Geometry in the residue space. (Russian) **57** #17500

**Aleksandrova, G. A.** An axiomatic construction of the geometry of the quasihyperbolic space $^{10}S_3^1$. (Russian) **57** #3996

**André, Johannes** Über verschiedene Klassen von Unterräumen in Räumen mit nichtkommutativer Verbindung. **58** #18133
 Zur Geometrie der Frobeniusgruppen. **58** #18134

**Beukenhout, Francis** (*with* Metz, Rudolf; Totten, Jim) A classification of linear spaces based on quadrangles. I. **57** #13689

**Čahtauri, I. A.** *See* **Kiotina, G. V., 58** #18136

**Dienst, Karl Jakob** Zu Sekanten symmetrische Halbovoide. **57** #3997

**Fick, Eckhard** Topologische affine Räume. **57** #13690

**Groh, Hansjoachim** Point homogeneous flat affine planes. **58** #12717
 Flat projective planes whose automorphism group contains $R^2$. **57** #13691

**Herzer, Armin** Konstruktion von Spernerräumen aus einer vorgegebenen projektiven Ebene. **58** #18135

**Hotje, Herbert** Beziehungen zwischen einbettbaren Berührstrukturen und kinematischen Räumen. **58** #12718

**Kárteszi, Ferenc** Su una congettura di Seppo Ilkka. **57** #17501

**Kaya, Rüstem** Polynomial Moulton planes. (Turkish summary) **57** #13692

**Kazangapov, A. N.** *See* **Akušskiĭ, I. Ja., 57** #17500

**Kiotina, G. V.** (*with* Čahtauri, I. A.) A biaxial-flag space of hyperbolic type. (Russian. Georgian and English summaries) **58** #18136

**Kuz′minyh, A. V.** A minimal condition that determines a Lorentz transformation. (Russian) **57** #7374

**Machala, František** Koordinatisation affiner Ebenen mit Homomorphismus. (Russian and loose English summaries) **58** #7389

**Metz, Rudolf** *See* **Beukenhout, Francis; et al., 57** #13689

**Rink, Rosemarie** Homomorphismen von Translationsebenen. **57** #13693

**Rudenko, A. B.** Spaces over the algebra of 1/4-quaternions. (Russian) **58** #12719

**Schwerdtfeger, Hans** Invariants of a class of transformation groups. II. **58** #12720

**Totten, Jim** *See* **Beukenhout, Francis; et al., 57** #13689

**Wefelscheid, Heinrich** Zur Charakterisierung einer Klasse von Hyperbelstrukturen. (English summary) **57** #10590

**Yamaguti, Kiyosi** Note on points and symplecta in the metasymplectic geometry. **49** #6027

Secondary classifications:

**Barlotti, Adriano** (*with* Cofman, Judita) Finite Sperner spaces constructed from projective and affine spaces. (**49** #87)

**Bruno, Sergis R.** (*with* Ferrero, M.) On the categories of the affine and baricentrical spaces. (**57** #10570)

**Buekenhout, Francis** Extensions of polar spaces and the doubly transitive symplectic groups. (**58** #351)

**Cofman, Judita** *See* **Barlotti, Adriano,** (**49** #87)

**Coxeter, Harold Scott MacDonald** The Pappus configuration and the self-inscribed octagon. I. (**58** #5301a)
 The Pappus configuration and the self-inscribed octagon. II. (**58** #5301b)
 The Pappus configuration and the self-inscribed octagon. III. (**58** #5301c)

**Dou, Alberto M.** Logical and historical remarks on Saccheri's geometry. (Spanish summary) (**45** #6557 (E **50** #1814) )

**Ferrero, M.** *See* **Bruno, Sergis R.,** (**57** #10570)

**Mavron, Vassili C.** On the construction and characterisation of a class of designs. (**45** #4993b)

**Schröder, Eberhard H.** Über eine Eigenschaft der Dualitäten. (**57** #13664)

**Törner, Günter** ($r^{n-1}$, $r$) Hjelmslev-Ebenen des Typs *n*. (**57** #10587)

**Vinberg, Ernest B.** The unimodular integral quadratic forms. (Russian) (**45** #8605)

## 52–XX CONVEX SETS AND GEOMETRIC INEQUALITIES

**(Alexander, Ralph)** *See* **Problems: Geometry of metric and linear spaces, 53** #6419

**(Chakerian, Gulbank D.)** *See* **Problems: Geometry of metric and linear spaces, 53** #6419

**(Chew, James)** *See* **Problems: Geometry of metric and linear spaces, 53** #6419

**(Edelstein, Michael)** *See* **Problems: Geometry of metric and linear spaces, 53** #6419

**(Eggleton, Roger B.)** *See* **Problems: Geometry of metric and linear spaces, 53** #6419

**(Fraenkel, Aviezri S.)** *See* **Problems: Geometry of metric and linear spaces, 53** #6419

**(Freedman, Allen)** *See* **Problems: Geometry of metric and linear spaces, 53** #6419

**(Freese, Raymond W.)** *See* **Problems: Geometry of metric and linear spaces, 53** #6419

**(Grünbaum, Branko)** *See* **Problems: Geometry of metric and linear spaces, 53** #6419

**(Guy, Richard K.)** *See* **Problems: Geometry of metric and linear spaces, 53** #6419

**(Kay, David C.)** *See* **Problems: Geometry of metric and linear spaces, 53** #6419

**(Kelly, Leroy M.)** *See* **Problems: Geometry of metric and linear spaces, 53** #6419

**(Klee, Victor)** *See* **Problems: Geometry of metric and linear spaces, 53** #6419

**(Kruskal, Joseph B.)** *See* **Problems: Geometry of metric and linear spaces, 53** #6419

**(Moser, Leo)** *See* **Problems: Geometry of metric and linear spaces, 53** #6419

**(Sallee, Tom)** *See* **Problems: Geometry of metric and linear spaces, 53** #6419

**(Seidel, Johan J.)** *See* **Problems: Geometry of metric and linear spaces, 53** #6419

**(Sobczyk, Andrew)** *See* **Problems: Geometry of metric and linear spaces, 53** #6419

**(Stolarsky, Kenneth B.)** *See* **Problems: Geometry of metric and linear spaces, 53** #6419

**Szép, András** Linear iterates of polygons. (Hungarian. English summary) **46** #4366

**Valentine, Frederick A.** ★Convex sets. **53** #14306

**(Wolfe, Dorothy)** *See* **Problems: Geometry of metric and linear spaces, 53** #6419

**Problems:**
 **Geometry of metric and linear spaces** Problems. **53** #6419

Secondary classifications:

**Kalai, Ehud** (*with* Smorodinsky, Meir) On a game theoretic notion of complexity for compact convex sets. (**51** #4948)

**Smorodinsky, Meir** *See* **Kalai, Ehud,** (**51** #4948)

### 52–01 Elementary exposition (collegiate level)

**Boltjanskiĭ, V. G.** (*with* Gohberg, Israel C.) ★Sätze und Probleme der kombinatorischen Geometrie. **50** #3108

**Gaskell, R. W.** (*with* Klamkin, Murray S.; Watson, P.) Triangulations and Pick's theorem. **53** #3881

**Gohberg, Israel C.** *See* **Boltjanskiĭ, V. G., 50** #3108

**Guggenheimer, Heinrich W.** ★Applicable geometry. **56** #1198

**Klamkin, Murray S.** *See* **Gaskell, R. W.; et al., 53** #3881

**(Kloth, Siegfried)** *See* **Boltjanskiĭ, V. G.; et al., 50** #3108

**(Klotzek, Benno)** *See* **Boltjanskiĭ, V. G.; et al., 50** #3108

**Nanclares, Jorge H.** *See* **Toranzos, Fausto A., 58** #24001

**Rademacher, H.** *See* **Steinitz, Ernst, 55** #3962

**Steinitz, Ernst** (*with* Rademacher, H.) ★Vorlesungen über die Theorie der Polyeder unter Einschluss der Elemente der Topologie. **55** #3962

**Toranzos, Fausto A.** (*with* Nanclares, Jorge H.) ★Convexidad. (Spanish) [Convexity] **58** #24001

**Watson, P.** *See* **Gaskell, R. W.; et al., 53** #3881

**Weaver, Charles S.** Geoboard triangles with one interior point. **57** #10591

Secondary classifications:

**Ahrens, Ingrid** *See* **Meschkowski, Herbert,** (**58** #2667)

**Belousov, E. G.** ★Введение в выпуклый анализ и целочисленное программирование. (Russian) [Introduction to convex analysis and integer programming] (**57** #15423)

**Garrido, Julio** On the classification of polyhedra. (Spanish. French summary) (**57** #17509)

**Meschkowski, Herbert** (*with* Ahrens, Ingrid) ★Theorie der Punktmengen. (**58** #2667)
 ★Ungelöste und unlösbare Probleme der Geometrie. (**52** #1503)

**Pugh, Anthony** ★Polyhedra: a visual approach. (**56** #9448)

**Steiner, Hans-Georg** Mathematisierungen, die auf metrische Räume führen. (**53** #5310)

### 52–02 Advanced exposition (research surveys, etc.)

**Bonnesen, T.** (*with* Fenchel, Werner) ★Theorie der konvexen Körper. **51** #8954
 (*with* Fenchel, Werner) ★Theorie der konvexen Körper. **49** #9736

**Dubois, Jacques** Sur la convexité et ses applications. **58** #24002

**Fenchel, Werner** *See* **Bonnesen, T., 49** #9736 *and* **Bonnesen, T., 51** #8954

**Jaglom, I. M.** Plane Minkowski geometry—problems and results. (Russian) **58** #30739

Secondary classifications:

**Marti, Jürg T.** ★Konvexe Analysis. (**58** #23497)

### 52–03 Historical

**Fenchel, Werner** Convexity through the ages. (Danish) **58** #30740

Secondary classifications:

**Châtelet, François** Sur l'équivalence finie des polyèdres. (**52** #13186)

**(Deheuvels, Paul)** *See* **Oeuvres: Lévy, Paul,** (**58** #27164b)

**(Dugué, Daniel)** *See* **Oeuvres: Lévy, Paul,** (**58** #27164b)

**(Ibéro, Michel)** *See* **Oeuvres: Lévy, Paul,** (**58** #27164b)

**(Lebesgue, Henri)** *See* **Châtelet, François,** (**52** #13186)

**(Lévy, Paul)** *See* **Oeuvres: Lévy, Paul,** (**58** #27164b)

**Oeuvres:**
 **Lévy, Paul** ★Oeuvres de Paul Lévy. Vol. II. (**58** #27164b)

### 52–04 Explicit machine computation and programs (not the theory of computation or programming)

**Berman, Joel D.** (*with* Hanes, Kit) Optimizing the arrangement of points on the unit sphere. **57** #17502

**Boyer, Marcel** (*with* Paquette, Louis) An algorithm to decide if the intersection of convex polyhedral cones has a non empty interior. **57** #1270

**Dolmatov, S. L.** *See* **Pankov, P. S., 58** #18137

**Hanes, Kit** *See* **Berman, Joel D., 57** #17502

**Pankov, P. S.** (*with* Dolmatov, S. L.) Use of a computer to find the number of regular pentagons that can simultaneously touch a given one. (Russian) **58** #18137

**Paquette, Louis** *See* **Boyer, Marcel, 57** #1270

**Ponomarenko, L. D.** *See* **Stojan, Ju. G., 57** #17503

**Stojan, Ju. G.** (*with* Ponomarenko, L. D.) An algorithm for the approximate solution of the problem of the densest packing of a set of parallelepipeds in a parallelepiped with forbidden domains. (Russian) **57** #17503

Secondary classifications:

**Akl, Selim G.** (*with* Toussaint, Godfried T.) A fast convex hull algorithm. (**58** #19323)

**Boyd, David W.** An algorithm for generating the sphere coordinates in a three-dimensional osculatory packing. (**49** #3700)

**Toussaint, Godfried T.** *See* **Akl, Selim G.,** (**58** #19323)

**Wendler, Klaus** Die rechentechnische Realisierung von Verfahren zur Lösung von linearen Optimierungsproblemen mit Parametern als Koeffizienten der Zielfunktion oder als rechte Seite der Restriktionen. (Russian, English and French summaries) (**58** #32924)

## 52–06 Collections of papers; proceedings of conferences

**(Kay, David C.)** *See* **Proceedings: Conference on Convexity and Combinatorial Geometry, 48** #9547
**(Kelly, Leroy M.)** *See* **Geometry of metric and linear spaces, 52** #9077
**Larman, D. G.** (*with* Rogers, C. A.) Durham symposium on the relations between infinite-dimensional and finite-dimensional convexity (21 July–1 August 1975). **52** #6569
**Rogers, C. A.** *See* **Larman, D. G., 52** #6569
**Combinatorial geometry** *See* **Proceedings: Conference on Convexity and Combinatorial Geometry, 48** #9547
**Conference:**
  **Convexity and Combinatorial Geometry** *See* **Proceedings: Conference on Convexity and Combinatorial Geometry, 48** #9547
  **Geometry** Conference on Geometry. **52** #6568
  **Geometry of Metric and Linear Spaces** *See* **Geometry of metric and linear spaces, 52** #9077
**Convexity** *See* **Proceedings: Conference on Convexity and Combinatorial Geometry, 48** #9547
**Geometry** *See* **Conference: Geometry, 52** #6568
**Geometry of metric and linear spaces** ★The geometry of metric and linear spaces. **52** #9077
**Linear spaces** *See* **Geometry of metric and linear spaces, 52** #9077
**Metric spaces** *See* **Geometry of metric and linear spaces, 52** #9077
**Proceedings:**
  **Conference on Convexity and Combinatorial Geometry** ★Proceedings of the Conference on Convexity and Combinatorial Geometry. **48** #9547
**Symposium:**
  **Relations between Infinite-Dimensional and Finite-Dimensional Convexity (Durham, 1975)** *See* **Larman, D. G.; et al., 52** #6569

Secondary classifications:

**(Burago, Ju. D.)** *See* **Problems in global geometry,** (**50** #11079)
**Geometry** *See* **Problems in global geometry,** (**50** #11079)
**Problems in global geometry** ★Вопросы глобальной геометрии. (Russian) [Problems in global geometry] (**50** #11079)

## 52A05 Convex sets without dimension restrictions

**Bair, Jacques** Ensembles à différence convexe. (English summary) **45** #2573
  (*with* Jongmans, F.) De l'art d'ériger sans péril des séparations branlantes. (English summary) **52** #9078
  Une mise au point sur la décomposition des convexes. (English summary) **54** #5968
  Extension du théorème de Straszewicz. (English summary) **54** #13721
  À propos d'un problème de Klee sur la séparation de plusieurs ensembles. **54** #11172
  (*with* Fourneau, René; Jongmans, F.) Vers la domestication de l'extrémisme. **57** #3998
  Décompositions d'un convexe à l'aide de certains de ses dilatés. (English summary) **57** #3999
  (*with* Jongmans, F.) Sur les graves questions qui naissent quand la décomposition des ensembles atteint un stade avancé. (English summary) **57** #10592
  Séparation forte *k*-branlante de deux convexes. **58** #2602
  Critères de séparation pour polyèdres convexes. (English summary) **58** #12721
  Description des sommands de quelques ensembles convexes. (Italian and English summaries) **58** #30741
**Bantegnie, Robert** Sur les cones d'infinitude et les convexes ubiquitaires. **52** #4123
**Beer, Gerald A.** The continuity of the visibility function on a starshaped set. **46** #9860
**Bourdeau, Marc** (*with* Dubuc, Serge) L'itération de Fejes Tóth sur un polygone. **51** #6580
**Bragard, Léopold** Cones visuels, composantes convexes et ensembles étoilés. (English summary) **49** #7918
**Breen, Marilyn** The combinatorial structure of $(m,n)$-convex sets. **48** #9548
  A characterization of the kernel of a closed set. **51** #8955
**Bressan, Juan Carlos** Axiomatic system for convex hull operators. (Spanish) **49** #11385
**Bridges, Douglas S.** On the connectivity of convex sets. **57** #17504
**Bryant, Victor** (*with* Webster, R. J.) Convexity spaces. I. The basic properties. **45** #5871
  (*with* Webster, R. J.) Convexity spaces. II. Separation. **52** #1519
  Independent axioms for convexity. **50** #8294
**Cantwell, John** Geometric convexity, I. **50** #11027
**Cassels, J. W. S.** Measures of the non-convexity of sets and the Shapley-Folkman-Starr theorem. **52** #6570
**Coelho, Renato Pereira** Axiomes de séparation dans les structures de convexité. **50** #5625
**Cornette, William M.** A generalization of the unit interval. **56** #1199
**Dessard, André** Quelques résultats dans les espaces à convexité. I, II. (English summaries) **52** #4124
  Sur la dimension d'un espace à convexité. (English summary) **53** #1401
  Généralisation d'un théorème de séparation franche dans un espace à convexité. (English summary) **54** #1082
**Dharmadhikari, S. W.** (*with* Jogdeo, Kumar) Some results on the kernel of a set. **48** #7114
**Doignon, Jean-Paul** Séparation franche dans un espace à convexité. (English summary) **52** #6571
  Caractérisations d'espaces de Pasch-Peano. (English summary) **57** #10593
**Donner, Klaus** Extremalpunktmethoden für geordnete Algebren. **58** #12722
**Dubuc, Serge** *See* **Bourdeau, Marc, 51** #6580
**Fedotov, V. P.** An analogue of the inequality between the arithmetic and harmoni means for convex sets. (Russian) **54** #1083
**Fourneau, René** *See* **Bair, Jacques; et al., 57** #3998
**Franchetti, Carlo** (*with* Votruba, George F.) Perimeter, Macphail number and projectio constant in Minkowski planes. (Italian summary) **57** #10594
**Gold, Sydell Perlmutter** The sets that are scissor congruent to an unbounded convex subset of the plane. **53** #1403
**Groemer, Helmut** On the extension of additive functionals on classes of convex sets. **58** #24003
**Grünbaum, Branko** (*with* Jaglom, I. M.) ★Этюды по комбинаторной геометрии и теории выпуклых тел. (Russian) [Studies in combinatorial geometry and the theory of convex bodies] **50** #5626
**Grygarová, Libuše** Lokale Berührungskegel einer Menge im Euklidischen Raum $E_n$. (Czech and loose Russian summaries) **55** #1219
**Gudder, Stanley P.** Convexity and mixtures. **55** #6304
**Hammer, Roswitha** Konvexitätsraum und affiner Raum. **52** #1520
**Haražišvili, A. B.** Locally conical sets. (Russian. Georgian and English summaries) **53** #1402
**Hare, William R.** *See* **Lawrence, J. F.; et al., 45** #1040
**Jaglom, I. M.** *See* **Grünbaum, Branko, 50** #5626
**Jamison, Robert E.** Contractions of convex sets. **55** #1220
  *See also* **Stavrakas, Nick M., 45** #2570 *and* **Stavrakas, Nick M., 46** #9861
**Jogdeo, Kumar** *See* **Dharmadhikari, S. W., 48** #7114
**Jongmans, F.** Réflexions sur l'art de sauver la face. (English summary) **56** #1200
  *See also* **Bair, Jacques, 52** #9078; **Bair, Jacques; et al., 57** #3998 *and* **Bair, Jacques, 57** #10592
**Kenelly, John W.** *See* **Lawrence, J. F.; et al., 45** #1040
**Kutateladze, S. S.** (*with* Rubinov, A. M.) On the theory of lattice duality of functions and sets. (Russian) **52** #15230
  Symmetry measures. (Russian) **53** #11491
**Kuz'mina, V. V.** *See* **Pinsker, A. G., 58** #18139
**Larman, D. G.** On the one-skeleton of a compact convex set in a Banach space. **55** #3963
**Lassak, Marek** On metric *B*-convexity for which diameters of any set and its hull are equal. (Russian summary) **57** #1271
**Lawrence, J. F.** (*with* Hare, William R.; Kenelly, John W.) Finite unions of convex sets. **45** #1040
**Lay, Steven R.** On separation by spherical surfaces. **45** #9248
**Loveland, L. D.** (*with* Valentine, Joseph E.) Characterizing a circle with the double midset property. **52** #9079
**Nedoma, Josef** ★Relatively convex analysis. **58** #18138
**Nikonova, F. I.** A characteristic property of infinite-dimensional simplexes. (Russian) **53** #3882
**Pázman, Andrej** Mixture sets and convex sets. **47** #955
**Petty, Clinton M.** Radon partitions in real linear spaces. **52** #9080
**Pinsker, A. G.** (*with* Kuz'mina, V. V.) An intrinsic characterization of a convex set in a topological vector space. (Russian) **58** #18139
**Pranger, Walter** Extreme points of convex sets. **54** #8447
**Roberts, A. Wayne** (*with* Varberg, Dale E.) ★Convex functions. **56** #1201
**Roberts, James W.** A compact convex set with no extreme points. **57** #10595
**Rubinov, A. M.** *See* **Kutateladze, S. S., 52** #15230
**Sakuma, Itsuo** Closedness of convex hulls. **57** #4000
**Sallee, G. T.** A non-continuous "Steiner point". **45** #5873
**Schechter, Murray** A solvability theorem for homogeneous functions. **54** #5969
**Serbskiĭ, E. V.** A description of the *H*-convex sets that can be determined by a hyperplane. (Russian) **57** #13694
**de Smet, Hugo J. P.** On a notion of convexity introduced by B. Fuchssteiner. **53** #11492
**Stavrakas, Nick M.** (*with* Jamison, Robert E.) On a problem of Klee. **45** #2570
  (*with* Jamison, Robert E.) Valentine's extensions of Tietze's theorem on convex sets. **46** #9861
**Szapiel, Wojciech** Points extrémaux dans les ensembles convexes. I. Théorie générale. (English and Russian summaries) **52** #15231
**Valentine, Joseph E.** *See* **Loveland, L. D., 52** #9079
**Varberg, Dale E.** *See* **Roberts, A. Wayne, 56** #1201
**Vlach, Milan** A note on separation by linear mappings. **55** #6305
**Votruba, George F.** *See* **Franchetti, Carlo, 57** #10594
**Webster, R. J.** *See* **Bryant, Victor, 45** #5871 *and* **Bryant, Victor, 52** #1519
**Weiss, Ernst-August, Jr.** Stark konvexe Mengen. **54** #1084
**Wolfe, Dorothy** Metric inequalities and convexity. **47** #7591
  Metric dependence and a sum of distances. **53** #3883
**Zabotin, Ja. I.** Equivalent definitions of quasiconvexity. (Russian) **57** #10596
**(Zalgaller, S. I.)** *See* **Grünbaum, Branko; et al., 50** #5626
**(Zalgaller, V. A.)** *See* **Grünbaum, Branko; et al., 50** #5626
**Zamfirescu, Tudor I.** Convexité par rapport à une famille continue de courbes. (Italian summary) **46** #2558
**Zizler, Václav** Note on separation of convex sets. **45** #1042
**Collection:**
  **Vulih, B. Z.** *See* **Pinsker, A. G.; et al., 58** #18139

Secondary classifications:

**Allen, John Ed** The boundary of an inverse starlike set. (**51** #11059)
**Altman, Mieczyslaw** A duality theorem for convolution. (**51** #12334)
**Armstrong, Thomas E.** Polyhedrality of infinite dimensional cubes. (**58** #12281)
**Bahtin, I. A.** (*with* Kosolapova, N. N.; Orehova, Z. P.) On Judin's problem. (Russian) (**58** #7020)
**Bair, Jacques** Sur un théorème de séparation de M. Vlach. (English summary) (**46** #5996)
  Séparation forte d'une famille finie d'ensembles convexes. (English summary) (**46** #7830)

Sur la séparation de familles finies d'ensembles convexes. (English summary) (**48** #4764)

Sur la nature de l'attenance des éléments d'une partition convexe. (English summary) (**48** #9344)

Sur les partitions convexes dans un espace vectoriel. (English summary) (**51** #11060)

Quelques compléments sur les partitions convexes finies d'un espace vectoriel. (English summary) (**49** #5777)

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## 53–XX DIFFERENTIAL GEOMETRY [For differential topology, see 57Dxx. For foundational questions of differentiable manifolds, see 58Axx.]

**Klingenberg, Wilhelm** ★Eine Vorlesung über Differentialgeometrie. **54** #3598

Secondary classifications:

**Laptev, B. L.** On the tenth anniversary of the founding of the Geometry Seminar of the All-Union Institute for Scientific and Technical Information (VINITI). (Russian. English summary) (**50** #12576)

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**Allendoerfer, Carl B.** ★Calculus of several variables and differentiable manifolds. **50** #14506

**Baur, Arnold** *See* **Fladt, Kuno**, **55** #3978

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**Fladt, Kuno** (*with* Baur, Arnold) ★Analytische Geometrie spezieller Flächen und Raumkurven. **55** #3978

**Guggenheimer, Heinrich W.** ★Differential geometry. **58** #12737

**Hinchey, Fred A.** ★Vectors and tensors for engineers and scientists. **55** #1226

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**Hoffmann, Banesh** ★About vectors. **52** #1532

**Karcher, Hermann** Globale Riemannsche Geometrie. **58** #7411

**Klingenberg, Wilhelm** ★A course in differential geometry. **57** #13702

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**Laugwitz, Detlef** ★Differentialgeometrie. **58** #12738

**Liber, A. E.** ★Тензорный анализ. (Russian) [Tensor analysis] **52** #15250

**Lichnerowicz, André** ★Тензорно смятане. (Bulgarian) [Tensor calculus] **49** #7923

**Lovelock, David** (*with* Rund, Hanno) ★Tensor, differential forms, and variational principles. **57** #13703

**Malliavin, Paul** ★Géométrie différentielle intrinsèque. **57** #13704

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**Nagano, Tadashi** Recent trends in differential geometry. (Japanese) **58** #24022

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**Radziszewski, Konstanty** ★Wstęp do współczesnej geometrii różniczkowej. (Polish) [Introduction to modern differential geometry] **55** #3979

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**Rund, Hanno** *See* **Lovelock, David**, **57** #13703

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**(Vega, Carlos)** *See* **Pogorelov, A. V.**, **57** #7399

**Walter, Rolf** ★Differentialgeometrie. **58** #7412

**Zalgaller, V. A.** ★Теория огибающих. (Russian) [Theory of envelopes] **52** #15252

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**(Bamberger, Yves)** *See* **Schwartz, Laurent**, (**58** #753)

**Beju, Iulian** (*with* Soós, Eugen; Teodorescu, P. P.) ★Tehnici de calcul vectorial cu aplicaţii. (Romanian) [Techniques of vector calculus with applications] (**58** #28015)

**Berger, Marcel** (*with* Gostiaux, Bernard) ★Géométrie différentielle. (**58** #13102)

**Borisov, Ju. F.** ★Лекции по математическому анализу с элементами дифференциальной геометрии. Часть I. (Russian) [Lectures on mathematical analysis, with the elements of differential geometry] (Not reviewed)

**(Bourguignon, Jean-Pierre)** *See* **Schwartz, Laurent**, (**58** #753)

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**Gostiaux, Bernard** *See* **Berger, Marcel**, (**58** #13102)

**Griffiths, H. B.** ★Surfaces. (**58** #18401)

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**Young, Eutiquio C.** ★Vector and tensor analysis. (**58** #3)

### 53–02 Advanced exposition (research surveys, etc.)

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**(Irimescu, Ion)** *See* **Vrănceanu, Gheorghe**, (**51** #39)
**Koszul, Jean-Louis** L'oeuvre d'Élie Cartan en géométrie différentielle. (**52** #13209)
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**(Levi-Civita, Tullio)** *See* **Galletto, Dionigi**, (**50** #4212) *and* **Ricci and Levi-Civita's tensor analysis paper**, (**57** #12153)
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**(Nikolaenko, M. A.)** *See* **Sincov, D. M.**, (**50** #9518)
**O'Gorman, F. P.** Poincaré's conventionalism of applied geometry. (**58** #20149)
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**Reich, Karin** Die Geschichte der Differentialgeometrie von Gauss bis Riemann (1828–1868). (**58** #15971)
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**Vidal, Enrique** Evolution of differential geometry and differential topology. (Spanish) (**58** #15998)
**Vincensini, Paul** La géométrie différentielle au XIXème siècle. Avec quelques réflexions générales sur les mathématiques. (**58** #21241)
**Vrănceanu, Gheorghe** ★Opera matematică. Vol. I. (Romanian) [Mathematical works. Vol. I] (**51** #37)
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**Davies, Evan Tom** *See* **Clark, R. S.**, (**53** #7685)
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## 53–06 Collections of papers; proceedings of conferences

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**(Bazylev, V. T.)** *See* **Geometry of imbedded manifolds**, **53** #9044 *and* **Geometry and topology**, **53** #9045
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**(Gołąb, Stanisław)** *See* **Collection: Gołąb, Stanisław, (48** #8164)
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**(Spencer, Donald C.)** *See* **Partial differential equations, (48** #6620)
**(Ţiţeica, Gheorghe)** *See* **Symposium: "Gheorghe Ţiţeica and Dimitrie Pompeiu", Geometry and Global Analysis, (55** #2428)
**(Vanstone, J. R.)** *See* **Proceedings: Biennial Seminar of the Canadian Mathematical Congress, (50** #4191) *and* **Proceedings: Biennial Seminar of the Canadian Mathematical Congress, (50** #4192)
**(Vrănceanu, Gheorghe)** *See* **Symposium: "Gheorghe Ţiţeica and Dimitrie Pompeiu", Geometry and Global Analysis, (55** #2428)
**Birthday:**
**Gołąb, Stanisław** *See* **Collection: Gołąb, Stanisław, (48** #8164)
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**Symposia Mathematica** ★Symposia Mathematica. Vol. X. **(49** #7065)
**Symposium:**
**"Gheorghe Ţiţeica and Dimitrie Pompeiu", Geometry and Global Analysis**
★Simpozionul de geometrie şi analiză globală "Gheorghe Ţiţeica şi Dimitrie Pompeiu". (Romanian) [The "Gheorghe Ţiţeica and Dimitrie Pompeiu" Symposium on Geometry and Global Analysis] **(55** #2428)
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**Coburn, Nathaniel** ★Vector and tensor analysis. **(49** #7393)
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**Gołąb, Stanisław** ★Tensor calculus. **(49** #11411)
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**Nomizu, Katsumi** Characteristic roots and vectors of a differentiable family of symmetric matrices. (49 #317)

**O'Keeffe, J. D.** Tensors, multilinear forms and their contractions. (50 #7222)

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**Sikorski, Roman** Abstract exterior differential. (51 #3204)

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**Vermes, Imre** Bemerkungen zum Parkettierungsproblem des hyperbolischen Raumes. (49 #9727)

**Višnevskiĭ, V. V.** Real realizations of tensor operations in spaces over algebras. (Russian) (50 #13096)

**Wang, Chao Chen** *See* **Bowen, Ray M.**, (57 #2) *and* **Bowen, Ray M.**, (57 #3)

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## 53A50 Spinor analysis

**Abbasov, N. T.** (*with* Kolokol'ceva, I. I.) Biquasisimple algebras, biquasimatrices, and spin representations of biquasinoneuclidean motions. (Russian) 54 #6001

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**Dodds, B.** Concomitants and syzygies of spinors in 3-dimensional Euclidean space. 48 #9580

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**Ebner, Dieter W.** On the existence of a geometrical interpretation of spinors of the various pseudo-euclidean spaces of dimension 3 and 4 by means of real, irreducible tensors of rank $p$. 49 #7935

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**Santaló, Luis A.** ★Geometria espinorial. (Spanish) [Spinor geometry] 55 #11163

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**Ament, W. S.** ★Finite arithmetics applying to certain geometric algebras. (55 #2968)

**Buchdahl, H. A.** On a calculus which reflects SO(3,2)≈Sp(2,$R$). (50 #7405)

**Crumeyrolle, Albert** Structures spinorielles symplectiques. (English summary) (53 #1604)

**Širokov, A. P.** On the question of spin representations of the rotations of Euclidean spaces over algebras. (Russian) (52 #14173)

**Vescan, Ágnes** On the algebraic foundation of spinor theory. (Hungarian) (50 #13095)

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**Zajtz, Andrzej** Klassifikation der linearen homogenen geometrischen Objekte vom Typus J mit messbarer Transformationsregel. **50** #14536

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**Jensen, Gary R.** ★Higher order contact of submanifolds of homogeneous spaces. (**58** #18226)

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**Sibirskiĭ, K. S.** ★Алгебраические инварианты дифференциальных уравнений и матриц. (Russian) [Algebraic invariants of differential equations and matrices] (**58** #22728a)

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**Tabor, Józef** Solution of the translation equation in Brandt and Ehresmann groupoids, and the invariant distributions of these groupoids. (Polish. French summary) (**50** #5253)

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Regular extensions of algebraic objects. (**55** #3142)

**Vosylius, R.** Formal differentiation in spaces of geometric objects. (Russian. Lithuanian and English summaries) (**54** #1278)

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**Weiner, Joel L.** Global properties of spherical curves. **58** #24082

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**Bakel'man, I. Ja.** (*with* Kantor, B. E.) Estimates of the solutions of quasilinear elliptic equations that are connected with problems of geometry "in the large". (Russian) (**48** #11766)

**Bandle, Catherine** Extensions of an inequality by Pólya and Schiffer for vibrating membranes. (**47** #4112)

**Grünbaum, F. Alberto** The orthogonal invariants of a curve in Hilbert space. (**48** #6901)

**Kantor, B. E.** *See* **Bakel'man, I. Ja.**, (**48** #11766)

**Kilp, H.** Quasilinear systems of first order partial differential equations with $m$ unknown functions of two independent variables and with noncoinciding characteristics (geometric theory). (Russian. Estonian and English summaries) (**47** #598)

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**Magnaradze, L. G.** New formulas that are analogous to the formulas of G. V. Kolosov, N. I. Mushelišvili, I. N. Vekua and others for certain fundamental nonhomogeneous, isotropic stationary and nonstationary physical fields. (Russian. English and Georgian summaries) (**45** #7267)

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The Dirichlet problem for the multidimensional analogue of the Monge-Ampère equation. (Russian) (**45** #2305)

**Taylor, M. A.** Classical, Cartesian and solution nets. (**46** #7063)

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**Gudkov, D. A.** Construction of a sixth order curve of type $\frac{5}{1}5$. (Russian) **47** #7678
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**Haupt, Otto** (*with* Künneth, Hermann) Ordnungstreue Erweiterung ebener Bogen und Kurven vom schwachen Ordnungswert Drei. **47** #9508
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(*with* Künneth, Hermann) Über einen $2n$-Scheitelsatz. **52** #15327a
(*with* Künneth, Hermann) Über den $2n$-Scheitelsatz von Herrn S. B. Jackson. **52** #15327b
(*with* Künneth, Hermann) Bestimmung der Bogen dritter Ordnung, insbesondere der ordnungstreu erweiterbaren, in topologisch projektiven Ebenen. **51** #13960
Über ordnungshomogene Bogen. **58** #18312
**Jackson, S. B.** Arcs of local cyclic order three. **46** #6259
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**Kramer, Horst** (*with* Németh, A. B.) Triangles inscribed in smooth closed arcs. **51** #11391
**Künneth, Hermann** *See* **Haupt, Otto, 47** #9508; **Haupt, Otto, 51** #13960; **Haupt, Otto, 52** #15327a *and* **Haupt, Otto, 52** #15327b
**Kuznecova, L. N.** (*with* Mel′nikova, L. P.) On the question of the generalization of the concept of the convexity of a curve (disproof of a conjecture of V. A. Efremovič). (Russian) **52** #6629
**Lane, Norman D.** (*with* Scherk, Peter; Turgeon, Jean M.) Quasigraphs. **56** #6583
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**Mel′nikova, L. P.** *See* **Kuznecova, L. N., 52** #6629
**Misfeld, Jürgen** Halbordnungstopologien in projektiven Ebenen. (English summary) **58** #18313
**Németh, Ã. B.** *See* **Kramer, Horst, 51** #11391
**Park, Ralph** (*with* Grassmann, E. G.) A characterization of collineations by order geometry. **46** #8150
**Pohl, William F.** A problem of Ordnungsgeometrie. **52** #4207
**Scherk, Peter** *See* **Lane, Norman D.; et al., 56** #6583
**Spoar, Gary** (*with* Lane, Norman D.) On singular points of normal arcs of cyclic order four. **52** #1593
Differentiability conditions and bounds on singular points. **53** #3968
**Strel′cov, V. V.** Certain estimates for monotone curves in three-dimensional space. (Russian) **45** #2571
**Turgeon, Jean M.** *See* **Lane, Norman D.; et al., 56** #6583
**Vaĭnšteĭn, A. G.** Closed submanifolds of small orders in $R^n$. (Russian) **57** #7496

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**Fabricius-Bjerre, Fr.** On a conjecture of G. Bol. (**57** #1297)
**Fedotov, V. P.** Some remarks on discrete chronogeometry. (Russian) (**57** #17483)
**Koutroufiotis, Dimitri** On Blaschke's rolling theorems. (**47** #2503)
**Penzov, Ju. E.** Order geometry on the line as a ternary relatif. (Russian) (**53** #7791)

### 53C99 None of the above, but in this section

**Popovici, Iulian** Remarques sur l'existence des structures spinorielles. **58** #24154
**Stojanov, V. I.** On inhomogeneous relativistic cosmological models. (Russian. Tajiki summary) **53** #11557
**Švec, Alois** Cubic forms on Riemannian surfaces. (Czech and Russian summaries) **58** #18314
**Wolpert, Scott** The eigenvalue spectrum as moduli for flat tori. **58** #24155

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**Chotteau, Bernard** Variété fibrée principale des configurations locales et propriétés des corps simples. (**47** #6180)
**Kuranishi, Masatake** The integrability condition of deformations of CR structures. (**58** #1264)
**Walczak, Paweł** A theorem on diffeomorphisms in the category of differential spaces. (Russian summary) (**47** #5895)
**Wood, John C.** Singularities of harmonic maps and applications of the Gauss-Bonnet formula. (**58** #18539)

## 54–XX GENERAL TOPOLOGY [For the topology of manifolds of all dimensions, see 57Axx.]

**Bourbaki, Nicolas** ★Éléments de mathématique. Topologie générale. Chapitres 1 à 4. **50** #11111
**Kelley, John L.** ★General topology. **51** #6681

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**Alò, Richard A.** A proof of the complete normality of chains. (**45** #1812)
**Dhombres, Jean G.** (*with* Venard, J.) ★Analyse et topologie. (**58** #22422)
**Venard, J.** *See* **Dhombres, Jean G.,** (**58** #22422)

### 54–01 Elementary exposition (collegiate level)

**Ahrens, Ingrid** *See* **Meschkowski, Herbert, 58** #2667
**Akilov, G. P.** (*with* Djatlov, V. N.) ★Лекции по математическому анализу. (Russian) [Lectures on mathematical analysis] **57** #4062
**Aleksandrov, P. S.** ★Введение в теорию множеств и общую топологию. (Russian) [Introduction to set theory and general topology] **58** #7520
**Arhangel′skiĭ, A. V.** (*with* Ponomarev, V. I.) ★Основы общей топологии в задачах и упражнениях. (Russian) [Fundamentals of general topology through problems and exercises] **56** #3781
**Arnold, Bradford H.** ★Elementare Topologie: Anschauliche Probleme und grundlegende Begriffe. **49** #9787
★Elementare Topologie. **52** #15328
**Balint, Ştefan** Observations on an aspect of the theory of filters. (Romanian. English summary) **48** #2962
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**Brown, Robert F.** Elementary consequences of the noncontractibility of the circle. **48** #9629
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**Christie, Dan E.** ★Basic topology. **58** #2666
**(Cohn, Leslie)** *See* **Šreĭder, Ju. A., 51** #11392
**Császár, Ákos** ★General topology. **57** #13812
**(Császár, Klára)** *See* **Császár, Ákos, 57** #13812
**Demaria, Davide Carlo** ★Topologia generale. **54** #6053a
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**Djatlov, V. N.** *See* **Akilov, G. P., 57** #4062
**Dugundji, James** ★Topology. **57** #17581
**(Edelberg, Harvey)** *See* **Šreĭder, Ju. A., 51** #11392
**(Engelking, Ryszard)** *See* **Kuratowski, Kazimierz, 49** #11449; **Kuratowski, Kazimierz, 58** #30948a *and* **Kuratowski, Kazimierz, 58** #30948b
**Faisant, Alain** ★TP et TD de topologie générale. **55** #13354
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**García Máynez, Adalberto** ★Introducción a la topología de conjuntos. (Spanish) [Introduction to point set topology] **53** #9114
**Gauld, David B.** Topological properties of manifolds. **50** #8397
Nearness—a better approach to topology. **58** #12877
**(Holland, Gerhard)** *See* **Arnold, Bradford H., 52** #15328
**Kahn, Donald W.** ★Topology. **53** #14364
**Kasriel, Robert H.** ★Undergraduate topology. **55** #4078
**(Kirsch, Arnold)** *See* **Arnold, Bradford H., 49** #9787 *and* **Arnold, Bradford H., 52** #15328
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**Kuratowski, Kazimierz** ★Introduction to set theory and topology. **49** #11449
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★Wstęp do teorii mnogości i topologii. (Polish) [Introduction to the theory of

sets and topology] **58** #30948b
**Long, Paul E.** ★An introduction to general topology. (See Zbl **322** #54001)
**Mendelson, Bert** ★Introduction to topology. **50** #14617
**Meschkowski, Herbert** (*with* Ahrens, Ingrid) ★Theorie der Punktmengen. **58** #2667
**Meyer, Paul R.** A short proof of the Urysohn metrization theorem. **45** #4355
**Mioduszewski, Jerzy** ★Wykłady z topologii. Część II: Przestrzenie topologiczne ogólne. (Polish) [Lectures on topology. Part II: General topological spaces] **50** #14618
**Munkres, James R.** ★Topology: a first course. **57** #4063
**Patterson, E. M.** ★Topologia. **49** #9788
**Ponomarev, V. I.** *See* **Arhangel'skiĭ, A. V., 56** #3781
**Potoczny, Henry** A non-extendable homeomorphism. **48** #12443
**Preuß, Gerhard** ★Allgemeine Topologie. **51** #6682
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**von Querenburg, Boto** ★Mengentheoretische Topologie. **57** #7497a
★Mengentheoretische Topologie. **57** #7497b
**(Raĭkov, D. A.)** *See* **Bourbaki, Nicolas, 58** #18315
**Schubert, Horst** ★Topologie: eine Einführung. **49** #11450
★Topologie. **54** #11257
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**Sims, Benjamin T.** ★Fundamentals of topology. **54** #3638
**Šreĭder, Ju. A.** ★What is distance? **51** #11392
**Sutherland, W. A.** ★Introduction to metric and topological spaces. **56** #1244
**Tingley, Daryl** Monochromatic lines in the plane. **53** #9115
**Vidav, Ivan** General topology. (Slovenian. English summary) **58** #7522
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**Ward, Lewis E., Jr.** ★Topology. **57** #7498
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**(Zaĭcev, V. I.)** *See* **Aleksandrov, P. S., 58** #7520

Secondary classifications:

**Aleksandrov, P. S.** ★Введение в гомологическую теорию размерности и общую комбинаторную топологию. (Russian) [Introduction to homological dimension theory and general combinatorial topology] (**58** #24234a)
★Introduction à la théorie homologique de la dimension et la topologie combinatoire. (**58** #24234b)
**Artémiadis, Nicolas K.** ★Real analysis. (**57** #6311)
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**Efremovič, V. A.** (*with* Černavskiĭ, A. V.) ★Элементы топологии. (Russian) [Elements of topology] (**58** #13041)
**(Imanishi, Hideki)** *See* **Sugawara, Masahiro,** (**57** #11981)
**Jameson, Graham** ★Topology and normed spaces. (**57** #3828)
**Kaplansky, Irving** ★Set theory and metric spaces. (**56** #11795)
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**Klambauer, Gabriel** ★Mathematical analysis. (**52** #14182)
**Klein, Erwin** ★Mathematical methods in theoretical economics. (**51** #2383)
**Nanzetta, Philip** (*with* Strecker, George, E.) ★Set theory and topology. (**57** #120)
**Pini, B.** ★Primo corso di analisi matematica. (**50** #13387)
**Schwartz, Laurent** ★Analyse. (**57** #7087)
**Sieklucki, Karol** On geometry and topology. (Polish) (**58** #10135)
**(Sosinskiĭ, A. B.)** *See* **Aleksandrov, P. S.,** (**58** #24234b)
**Strecker, George, E.** *See* **Nanzetta, Philip,** (**57** #120)
**Sugawara, Masahiro** ★Introduction à la topologie. (**57** #11981)

### 54–02 Advanced exposition (research surveys, etc.)

**Aleksandrov, P. S.** (*with* Fedorčuk, V. V.) Principal moments in the development of set-theoretic topology. (Russian) **58** #12879
**Alò, Richard A.** (*with* Shapiro, Harvey L.) ★Normal topological spaces. **52** #11808
**Arya, Shashi Prabha** Sum theorems for topological spaces. **48** #9630
**(Babai, László)** *See* **Problems: Topology, 50** #8399
**(Bognár, Mátyás)** *See* **Problems: Topology, 50** #8399
**Comfort, W. W.** (*with* Negrepontis, S.) ★Continuous pseudometrics. **53** #14366
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**(Domiaty, R. Z.)** *See* **Problems: Topology, 50** #8399
**(Dowker, C. H.)** *See* **Problems: Topology, 50** #8399
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**Eisenberg, Murray** ★Topology. **56** #13135
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★General topology. **58** #18316b
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**Franz, Wolfgang** ★Topologie. I: Allegemeine Topologie. **50** #3168
**Gemignani, Michael C.** ★Elementary topology. **50** #3169
**(Hajnal, András)** *See* **Problems: Topology, 50** #8399
**Harzheim, Egbert** (*with* Ratschek, Helmut) ★Einführung in die allgemeine Topologie. **52** #1594
**(Juhász, István)** *See* **Problems: Topology, 50** #8399
**(Lovász, László)** *See* **Problems: Topology, 50** #8399
**Malyhin, V. I.** (*with* Ponomarev, V. I.) General topology (set-theoretic approach). (Russian) **58** #24156
**(Máté, Attila)** *See* **Problems: Topology, 50** #8399
**(Morita, Kiiti)** *See* **Problems: Topology, 50** #8399
**Nagata, Jun-iti** ★Modern general topology. **57** #13814
**Negrepontis, S.** *See* **Comfort, W. W., 53** #14366
**(Nowiński, Krzysztof)** *See* **Problems: Topology, 50** #8399
**Nyikos, Peter J.** A survey of zero-dimensional spaces. **56** #1245
**(Pelikán, József)** *See* **Problems: Topology, 50** #8399
**Ponomarev, V. I.** *See* **Malyhin, V. I., 58** #24156
**(Przymusiński, Teodor C.)** *See* **Problems: Topology, 50** #8399
**Ratschek, Helmut** *See* **Harzheim, Egbert, 52** #1594
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**(Smirnov, Ju. M.)** *See* **Problems: Topology, 50** #8399
**(Tall, Franklin D.)** *See* **Problems: Topology, 50** #8399
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**(Toruńczyk, Henryk)** *See* **Problems: Topology, 50** #8399
**(Tumarkin, L. A.)** *See* **Problems: Topology, 50** #8399
**Walker, Russell C.** ★The Stone-Čech compactification. **52** #1595
**Weir, Maurice D.** ★Hewitt-Nachbin spaces. **58** #24158
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**NSF-CBMS Regional, Topology** ★{Special issue}. **55** #11182
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**Aleksandrov, P. S.** (*with* Hopf, Heinz) ★Topologie. I. (**49** #9826)
**Comfort, W. W.** (*with* Negrepontis, S.) ★The theory of ultrafilters. (**53** #135)
**Frolík, Zdeněk** Topological methods in measure theory and the theory of measurable spaces. (**51** #8358)
**Hopf, Heinz** *See* **Aleksandrov, P. S.,** (**49** #9826)
**Müller, Paul Heinz** ★Höhere Analysis. I. (**50** #12507)
**Negrepontis, S.** *See* **Comfort, W. W.,** (**53** #135)
**Schori, R. M.** A technique in infinite-dimensional topology. (**50** #5802)

### 54–03 Historical

**Aleksandrov, P. S.** A. N. Tihonov's principal topological discoveries. (Russian) **56** #6584
**Freudenthal, H.** Die Topologie in historischen Durchblicken. **50** #1189
The first beginnings of modern topology, according to unpublished works from the estate of L. E. J. Brouwer. (Dutch) **58** #30949
**Katetov, Miroslav** P. S. Uryson and the beginnings of general topology. (Czech) **58** #2668
**Rinow, Willi** Zehn Jahre Topologie in Greifswald. **50** #5712
**(Tihonov, A. N.)** *See* **Aleksandrov, P. S., 56** #6584
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Secondary classifications:

**Aleksandrov, P. S.** (*with* Fedorčuk, V. V.) Principal moments in the development of set-theoretic topology. (Russian) (**58** #12879)
**Baayen, P. C.** (*with* Maurice, M. A.) de Groot, Johannes (1914-1972). (**47** #1569)
The topological works of J. de Groot. (**50** #27)
**(Császár, Ákos)** *See* **Juhász, István; et al.,** (**50** #9501)
**Dauben, Joseph W.** The invariance of dimension: problems in the early development of set theory and topology. (German summary) (**57** #15888)
**Fedorčuk, V. V.** *See* **Aleksandrov, P. S.,** (**58** #12879)
**Freudenthal, H.** Leibniz und die *Analysis Situs*. (**58** #26882)
**(de Groot, Johannes H.)** *See* **Baayen, P. C.; et al.,** (**47** #1569); **Baayen, P. C.,** (**50** #27) *and* **McDowell, R. H.,** (**50** #9505)
**Juhász, István** (*with* Petruska, György) On the occasion of the fiftieth birthday of Ákos Császár. (Hungarian) (**50** #9501)
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**Petruska, György** *See* **Juhász, István,** (**50** #9501)
**(Zaĭcev, V. I.)** *See* **Aleksandrov, P. S.; et al.,** (**58** #12879)
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**de Groot, Johannes H.** *See* **Baayen, P. C.; et al.,** (**47** #1569); **Baayen, P. C.,** (**50** #27) *and* **McDowell, R. H.,** (**50** #9505)
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**Császár, Ákos** *See* **Juhász, István; et al.,** (**50** #9501)
**de Groot, Johannes H.** *See* **Baayen, P. C.; et al.,** (**47** #1569) *and* **McDowell, R. H.,** (**50** #9505)
**Obituary:**
**de Groot, Johannes H.** *See* **Baayen, P. C.,** (**50** #27)

### 54–06 Collections of papers; proceedings of conferences

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**(Allen, Keith R.)** *See* **Studies in topology, 50** #3170
**(Alò, Richard A.)** *See* **TOPO 72—general topology and its applications, 49** #1457
**Antonovskiĭ, M. Ja.** (*with* Mal'cev, A. A.) The Third International Prague Symposium on General Topology and its Applications to Algebra and Analysis. (Russian) **52** #9139

**(Baayen, P. C.)** *See* **Topological structures**, 49 #9789
**(Binz, Ernst)** *See* **Categorical topology**, 53 #11558
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**Lokucievskiĭ, O. V.** (*with* Mal′cev, A. A.; Smirnov, Ju. M.) International Topology Colloquium in Keszthely. (Russian) 52 #9140
**Mal′cev, A. A.** *See* **Aleksandrov, P. S.**, 52 #9138; **Antonovskiĭ, M. Ja.**, 52 #9139 *and* **Lokucievskiĭ, O. V.; et al.**, 52 #9140
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**(Stavrakas, Nick M.)** *See* **Studies in topology**, 50 #3170
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**Categorical topology** ★Categorical topology. 53 #11558
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*See also* **Schori, R. M., 51** #4134 *and* **Schori, R. M., 52** #11815

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**Ball, B. J.** (*with* Ford, Jo) Spaces of ANR's. (**48** #2983)

(*with* Ford, Jo) Spaces of ANR's. II. (**48** #2984)

**Borsuk, Karol** On a metrization of the hyperspace of a metric space. (**55** #6373)

**Cerruti, Umberto** Sulla convergenza di reti di insiemi. (English summary) (**49** #11452)

**Chimenti, Frank A.** Tychonoff's theorem for hyperspaces. (**46** #6262)

**Curtis, Douglas W.** (*with* Schori, R. M.) Hyperspaces which characterize simple homotopy type. (**52** #15483)

**Eberhart, Carl** (*with* Nadler, Sam B., Jr.) The dimension of certain hyperspaces. (**46** #2650)

Continua with locally connected Whitney continua. (**58** #2748)

**Ford, Jo** *See* **Ball, B. J.**, (**48** #2983) *and* **Ball, B. J.**, (**48** #2984)

**Fuller, R. V.** Condition for a function space to be locally compact. (**51** #11413)

**Goel, C. K.** *See* **Vasudevan, R.**, (51 #4180) *and* **Vasudevan, R.**, (**52** #6675)

**Goodykoontz, Jack T., Jr.** Some functions on hyperspaces of hereditarily unicoherent continua. (**55** #9047)

$C(X)$ is not necessarily a retract of $2^X$. (**56** #16580)

**Grimeisen, Gerhard** The hyperspace of lower semicontinuity and the first power of a topological space. (**50** #1190)

**Hagopian, Charles L.** A fixed point theorem for hyperspaces of λ connected continua. (**51** #13997 (E **56** #1288) )

**Hughes, C. Bruce** Some properties of Whitney continua in the hyperspace $C(X)$. (**56** #16585)

**Juhász, István** Non-standard notes on the hyperspace. (**58** #2786)

**Krasinkiewicz, Józef** No 0-dimensional set disconnects the hyperspace of a continuum. (Russian summary) (**46** #6321)

On the hyperspaces of hereditarily indecomposable continua. (**50** #3203)

On the hyperspaces of snake-like and circle-like continua. (**54** #6102)

On the hyperspaces of certain plane continua. (Russian summary) (**58** #12942)

**Kroonenberg, Nelly** Pseudo-interiors of hyperspaces. (**54** #1230)

**Lau, August Yiu Wa** Acyclicity and dimension of hyperspace of subcontinua. (Russian summary) (**51** #4191)

A note on monotone maps and hyperspaces. (Russian summary) (**53** #14446)

Whitney continuum in hyperspace. (**56** #16587)

**Levine, Norman** (*with* Stager, William J., Jr.) On the hyperspace of a quasi-uniform space. (**48** #1182)

**Marjanović, Milosav M.** Exponentially complete spaces. IV. (**58** #24168)

Corresponding member Milosav M. Marjanović's communication on his work: The determination of the topological types of spaces of closed sets. (Serbo-Croatian) (**57** #9442)

**McCoy, Robert A.** Baire spaces and hyperspaces. (**53** #14436)

**Nadler, Sam B., Jr.** (*with* Rogers, James T., Jr.) A note on hyperspaces and the fixed point property. (**51** #13998)

Arcwise accessibility in hyperspaces. (**54** #13873)

(*with* Quinn, Joseph E.; Stavrakas, Nick M.) Hyperspaces of compact convex sets. II. (Russian summary) (**58** #24269)

A characterization of locally connected continua by hyperspace retractions. (**56** #16581)

*See also* **Eberhart, Carl**, (**46** #2650)

**Quinn, Joseph E.** *See* **Nadler, Sam B., Jr.; et al.**, (**58** #24269)

**Rogers, James T., Jr.** Hyperspaces, dimension, and the fixed-point property. (**52** #11861)

Dimension of hyperspaces. (Russian summary) (**51** #6762)

Hyperspaces of arc-like and circle-like continua. (**50** #8474)

Applications of a Vietoris-Begle theorem for multi-valued maps to the cohomology of hyperspaces. (**53** #1536)

Whitney continua in the hyperspace $C(X)$. (**52** #4253)

The Whitney subcontinua of $C(X)$. (Russian summary) (**53** #6513)

Solenoids of pseudo-arcs. (**57** #4128)

*See also* **Nadler, Sam B., Jr.**, (**51** #13998)

**Schori, R. M.** *See* **Curtis, Douglas W.**, (**52** #15483)

**Stager, William J., Jr.** *See* **Levine, Norman**, (**48** #1182)

**Stavrakas, Nick M.** *See* **Nadler, Sam B., Jr.; et al.**, (**58** #24269)

**Tašmetov, U.** Shapes of hypershapes. (Russian. Uzbek summary) (**52** #6655)

**Vasudevan, R.** (*with* Goel, C. K.) Separation axioms in bitopological hyperspaces. (**52** #6675)

(*with* Goel, C. K.) Connectivity properties of bitopological hyperspaces. (**51** #4180)

**Wardle, Roger W.** On a property of J. L. Kelley. (**56** #16582)

**Wattenberg, Frank** . Topologies on the set of closed subsets. (**58** #18400)

**West, James E.** Induced involutions on Hilbert cube hyperspaces. (**58** #24276)

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**Cîmpian, V.** Limit topologies. (Romanian. Russian and French summaries) **45** #1101

**Curtis, Douglas W.** Simplicial maps which stabilize to near-homeomorphisms. **47** #5808

**Davis, Harvey S.** Relationships between continuum neighborhoods in inverse limit spaces and separations in inverse limit sequences. **56** #1251

**Drešević, M. M.** On inverse limit of function spaces. **49** #3811

**Duda, Roman** One result on inverse limits and hyperspaces. **50** #8413

**Gordh, G. R., Jr.** (*with* Mardešić, Sibe) Reducing inverse systems of monomorphisms. **52** #6642

Universal inverse systems of monomorphisms. (Serbo-Croatian summary) **51** #13970

(*with* Mardešić, Sibe) Characterizing local connectedness in inverse limits. **52** #6643

**Hajek, Darrell W.** (*with* Strecker, George, E.) Direct limits of Hausdorff spaces. **50** #8410

**Jones, F. Burton** The utility of empty inverse limits. **50** #8414

**Kozlovskiĭ, I. M.** Absolute spectral decompositions. (Russian) **48** #1140

**Kulpa, Władysław** Homeomorphisms of inverse limits of metric spaces. **53** #14384

**Kvančilašvili, M. T.** Normality type of a complete space. (Russian. Georgian and English summaries) **53** #14385

**Mardešić, Sibe** *See* **Gordh, G. R., Jr., 52** #6642 *and* **Gordh, G. R., Jr., 52** #6643

**Marjanović, Milosav M.** Exponentially complete spaces. IV. **58** #24168

**Mustafa, F. È.** Limits of direct systems of completely regular spaces. (Russian. Georgian and English summaries) **50** #5721

The direct limit of Hausdorff spaces. (Russian. Georgian and English summaries) **50** #5722

**Nagami, Keiô** Countable paracompactness of inverse limits and products. **46** #844

**Pears, A. R.** On quasi-order spaces, normality, and paracompactness. **45** #4360

**Pol, Elżbieta** Limit mappings and projections of inverse systems. **49** #9791

**Rogers, J. W., Jr.** Inducing approximating maps between inverse limits. **50** #8411

Inducing approximations homotopic to maps between inverse limits. **49** #11453

Some approximation theorems for inverse limits. **50** #11119

**Rogers, James T., Jr.** Inverse limits of manifolds with covering maps. **49** #6127

(*with* Tollefson, Jeffrey L.) Maps between weak solenoidal spaces. **46** #8157

(*with* Tollefson, Jeffrey L.) Homeomorphisms homotopic to induced homeomorphisms of weak solenoidal spaces. **46** #845

**Savinov, N. V.** An example of a perfectly normal bicompactum without intermediate dimensions. (Russian. English summary) **54** #11265

**Scarparo, Renato César** Inverse simultaneous carriers. (Spanish) **50** #14631

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**Ščepin, E. V.** Topology of limit spaces with uncountable inverse spectra. (Russian) **57** #4072

**Schoenfeld, Alan H.** Continuous mappings from Cantor spaces onto inverse limit spectra. **54** #8551

**Strecker, George, E.** *See* **Hajek, Darrell W., 50** #8410

**Strok, M.** A factorization lemma and its application to realization of mappings as inverse limits. **49** #9792

**Tollefson, Jeffrey L.** *See* **Rogers, James T., Jr., 46** #845 *and* **Rogers, James T., Jr., 46** #8157

**Valiev, V. A.** The spectral dimension of bicompact extensions. (Russian. English summary)` **48** #7193

**Waterhouse, William C.** An empty inverse limit. **46** #8158

**Zaĭcev, V. I.** Projective spectra. (Russian) **53** #6484

Secondary classifications:

**Arhangel′skiĭ, A. V.** Extension of E. V. Ščepin's spectral theorem to completely regular spaces. (Russian) (**56** #13162)

**Bacon, Philip** Continuous functors. (**53** #11598)

**Bogatyĭ, Semen A.** (*with* Smirnov, Ju. M.) Approximation by polyhedra and factorization theorems for ANR-bicompacta. (Russian) (**52** #4222)

**Chew, Kim Peu** $E$-compact spaces as inverse limits. (**50** #1206)

**Čoban, M. M.** The topological structure of subsets of topological groups and of their quotient spaces. (Russian) (**53** #9124)

**Dyckhoff, Roy** Perfect light maps as inverse limits. (**51** #6695)

**Feiste, Uwe** Projective limits of finite decomposition systems. (**58** #11322)

**Gordh, G. R., Jr.** On inverse limits of ANR's with metric shape. (**52** #4223)

**Hajek, Darrell W.** Preserving separation properties under direct limits. (**56** #16567)

**Handel, David** (*with* Segal, Jack) On shape classifications and invariants. (**49** #9802)

**Jones, F. Burton** Tall trees and inverse limits. (**52** #15333)

**Kuykendall, D. P.** Irreducibility and indecomposability in inverse limits. (**48** #5027)

**Morishita, Mitsuo** On countably projective properties. (**58** #12913)

**Pechanec-Drahoš, Jaroslav** Modifications of closure collections. (**58** #7536)

Representations of presheaves of semiuniformisable spaces, and representation of a presheaf by the presheaf of all continuous sections in its covering-space. (**58** #7537)

**Rogers, J. W., Jr.** Inverse limits on graphs and monotone mappings. (**48** #3020)

**Segal, Jack** *See* **Handel, David**, (**49** #9802)

**Shiraki, Mitsunobu** Compact $T_1$-space and the family of finite topological spaces. (**56** #6602)

**Smirnov, Ju. M.** *See* **Bogatyĭ, Semen A.**, (**52** #4222)

## 54B30 Categorical methods

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**Ceccherini, Pier Vittorio** Topologie e categorie associabili a spazi grafici o a spazi più

generali. I. (English summary) **58** #12894a
Topologie e categorie associabili a spazi grafici o a spazi più generali. II. (English summary) **58** #12894b
**Chvalina, Jan** (*with* Sekanina, Milan) Realizations of closure spaces by set systems. **50** #8415
**García, O. C.** Colimits and coreflective subcategories in partially ordered topological spaces. **50** #11120
**Hajek, Darrell W.** (*with* Wilson, Richard G.) Minimal embedding-reflective subcategories in the category of Hausdorff spaces. **51** #11404
**Herrlich, Horst** A generalization of perfect maps. **50** #14634
Perfect subcategories and factorizations. **50** #14635
Topological functors. **49** #7970
Epireflective subcategories of TOP need not be cowellpowered. **54** #13832
*See also* **Bentley, H. L.**, **58** #2680
**Hoffmann, Rudolf-Eberhard** Topological functors and factorizations. **55** #1280
Charakterisierung nüchterner Räume. (English summary) **51** #11405
Semi-identifying lifts and a generalization of the duality theorem for topological functors. **55** #1281
**Hong, Sung Sa** On ŧ-compactlike spaces and reflective subcategories. **48** #12450
Limit-operators and reflective subcategories. **51** #1708
Extensive subcategories of the category of $T_0$-spaces. **51** #11406
Extensive subcategories. **55** #1282
**Hušek, Miroslav** Simple categories of topological spaces. **50** #8416
(*with* Pelant, Jan) Note about atom-categories of topological spaces. **50** #8417
**Kannan, V.** On a problem of Herrlich. **58** #2681
**Machado, Armando** Espaces d'Antoine et pseudo-topologies. **49** #9793
**Nakagawa, Ryosuke** Factorization structures and subcategories of the category of topological spaces. **54** #8552
**Nel, Louis D.** Development classes: An approach to perfectness, reflectiveness and extension problems. **51** #4136
Topological categories with natural function space structures. **54** #13833
**Pavelka, Jan** Tensor products in the category of convergence spaces. **48** #2971 (E **50** #3176)
Correction to my paper: "Tensor products in the category of convergence spaces" (Comment. Math. Univ. Carolinae **13** (1972), 693–709). **50** #3176
**Pelant, Jan** *See* **Hušek, Miroslav**, **50** #8417
**Porter, Jack R.** Extension function and subcategories of HAUS. **53** #3981
**Rosický, Jiří** (*with* Sekanina, Milan) Realizations of topologies by set-systems. **50** #8418
Liftings of functors in topological situations. **58** #2682
**Salicrup López, Graciela** (*with* Vázquez, Roberto) Fibrations and coreflections. (Russian) **58** #2683
(*with* Vázquez, Roberto) Reflexivity and co-connectedness in TOP. (Spanish) **51** #4137 (E **53** #9129)
(*with* Vázquez, Roberto) Errata to: "Reflexivity and co-connectedness in TOP" (An. Inst. Mat. Univ. Nac. Autónoma México **14** (1974), 159–230). (Spanish) **53** #9129
**Sekanina, Milan** *See* **Chvalina, Jan**, **50** #8415 *and* **Rosický, Jiří**, **50** #8418
**Strecker, George, E.** On characterizations of perfect morphisms and epireflective hulls. **51** #1709
**Tanré, Daniel** Compactification de Stone-Čech et triple associé. **50** #5723
Topologie localement connexe associée à une topologie quelconque. **48** #7194
Espaces de Kelley et connexité locale. **50** #11121
**Thrivikraman, T.** Topological reflections and nets. **52** #15343
**Vázquez, Roberto** *See* **Salicrup López, Graciela**, **51** #4137 (E **53** #9129) ; **Salicrup López, Graciela**, **53** #9129 *and* **Salicrup López, Graciela**, **58** #2683
**Vilímovský, Jiří** Generation of coreflections in categories. **51** #11407 (EA **52**)
**Wilson, Richard G.** *See* **Hajek, Darrell W.**, **51** #11404
**Wolff, Harvey** On the external characterization of topological functors. **58** #18331
**Wyler, Oswald** Convenient categories for topology. **48** #2972

Secondary classifications:

**Bentley, H. L.** (*with* Herrlich, Horst; Robertson, W. A.) Convenient categories for topologists. (**54** #13840)
**Choe, Tae Ho** (*with* Hong, Young Hee) Extensive subcategories in universal topological algebras. (**55** #243)
**Čoban, M. M.** *See* **Nedev, Stojan Ĭ.**, (**52** #15380)
**Franklin, Stanley P.** (*with* Lutzer, David J.; Thomas, Barbara V. Smith) On subcategories of TOP. (**54** #13844)
**Frolík, Zdeněk** Basic refinements of the category of uniform spaces. (**50** #11164)
On uniform spaces. (**51** #6743)
**Herrlich, Horst** Topological structures. (**50** #11165)
A concept of nearness. (**50** #3193)
Topological structures. (**54** #8548)
Convenient categories for topologies. (**55** #1314)
Products in topology. (**58** #2676)
*See also* **Bentley, H. L.; et al.**, (**54** #13840)
**Hoffmann, Rudolf-Eberhard** Full reflective restrictions of topological functors. (**58** #11071)
**Holodovskiĭ, V. E.** The completeness of a uniform quotient space. (Russian) (**57** #13864)
**Hong, Young Hee** *See* **Choe, Tae Ho**, (**55** #243)
**Isbell, John R.** Atomless parts of spaces. (**50** #11184)
**López Piñeiro, F.** Categories of sets with filter. (Spanish) (**50** #431)
**Lutzer, David J.** *See* **Franklin, Stanley P.; et al.**, (**54** #13844)
**Manes, Ernest Gene** Compact Hausdorff objects. (**51** #4143)
**Mozzochi, Charles J.** Symmetric generalized topological structures. II. (**51** #1752)
**Nedev, Stojan Ĭ.** (*with* Čoban, M. M.) $o$-metrics and proximity spaces. Metrization of proximity spaces. (Russian) (**52** #15380)
**Penon, Jacques** Sur les objets séparés et les objets compacts. (**51** #641)
Catégories à sommes commutables. (**50** #10005)
**Preuß, Gerhard** A categorical generalization of completely Hausdorff spaces. (**50** #5736)
**Pták, Pavel** A note on normal topological functors and extensions of transformations. (**54** #6080)
**Robertson, W. A.** *See* **Bentley, H. L.; et al.**, (**54** #13840)
**Salicrup López, Graciela** (*with* Vázquez, Roberto) Maximal objects in connection categories of Top. (Spanish) (**53** #14407)
**Schröder, Johann** Epi und extremer Mono in $T_{2a}$. (**52** #6648)
**Shukla, Wagish** (*with* Srivastava, Arun K.) Local reflectivity + stable reflectivity = reflectivity. (**52** #528)
**Srivastava, Arun K.** *See* **Shukla, Wagish**, (**52** #528)
**Strecker, George, E.** Component properties and factorizations. (**50** #8421)
**Thomas, Barbara V. Smith** *See* **Franklin, Stanley P.; et al.**, (**54** #13844)
**Vázquez, Roberto** *See* **Salicrup López, Graciela**, (**53** #14407)
**Vilímovský, Jiří** Categorical refinements and their relation to reflective subcategories. (**54** #1173)

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**Arya, Shashi Prabha** *See* **Singal, M. K.**, **52** #4216
**Baker, John Warren** Ordinal subspaces of topological spaces. **48** #2973
**(Blok, Willem J.)** *See* **de Groot, Johannes H.**, **51** #9012
**(Bruijning, J.)** *See* **de Groot, Johannes H.**, **51** #9012
**Buchwalter, Henri** Produit topologique, produit tensoriel et $c$-replétion. **56** #9476
**Bunjatov, M. R.** The Boolean power of a topological space. (Russian. Azerbaijani and English summaries) **49** #3813
**Čoban, M. M.** Note sur topologie exponentielle. **45** #1102
**Czyż, J.** On the topological structure of the inductive differentiable manifold. (Russian summary) **54** #1151
**Franklin, Stanley P.** (*with* Thomas, Barbara V. Smith) On the metrizability of $k_\omega$-spaces. **57** #1397
**de Groot, Johannes H.** Graph representations of topological spaces. **51** #9012
**Harris, Douglas** Representation of spaces. **50** #11122
**Knight, C. J.** (*with* Moran, William; Pym, John) The topologies of separate continuity. II. **45** #9282
**Moran, William** *See* **Knight, C. J.; et al.**, **45** #9282
**Narens, Louis** Topologies of closed subsets. **47** #1007
**Ovsepjan, S. G.** A certain new method of constructing extensions of topological spaces. (Russian) **47** #9516
**Oxtoby, John C.** The kernel operation on subsets of a $T_1$-space. **55** #4092
**Pechanec-Drahoš, Jaroslav** Representations of presheaves of closure space. **46** #6264
**Pym, John** *See* **Knight, C. J.; et al.**, **45** #9282
**Reynolds, Donald F.** Expansions of topologies by locally finite collections. **50** #11123
**Singal, M. K.** (*with* Arya, Shashi Prabha) On the closure-preserving sum theorem. **52** #4216
**Thomas, Barbara V. Smith** *See* **Franklin, Stanley P.**, **57** #1397

Secondary classifications:

**Flachsmeyer, Jürgen** Envelopes in the category of Kakutani-$M$-spaces. (**55** #8743)
**Macnab, D. S.** Some applications of double-negation sheafification. (**57** #412)
**Năstăsescu, Constantin** La serie di Loewy associata ad un anello. (**51** #12816)
**Nel, Louis D.** Cartesian closed topological categories. (**56** #5682)
**Nordman, Hasse** Convergence functions and inductive limits. (**51** #13963)

## 54Cxx Maps and general types of spaces defined by maps

**Borsuk, Karol** ★Теория ретрактов. (Russian) [Theory of retracts] **50** #3177
**(Smirnov, Ju. M.)** *See* **Borsuk, Karol**, **50** #3177
**(Velikanov, K. M.)** *See* **Borsuk, Karol**, **50** #3177

Secondary classifications:

**Goodearl, K. R.** Local isomorphisms of algebras of continuous functions. (**58** #2203)
**Raghavan, T. G.** Analogue of Katětov's theorem. (**57** #7544)
**Rutkovskiĭ, N. V.** A general characterization of spaces of continuous functions that possess supremal generators of finite dimension. (Russian) (**58** #2200)
**Walker, Russell C.** ★The Stone-Čech compactification. (**52** #1595)
**Continuous functions** *See* **Symposia Mathematica**, (**53** #5225)
**INDAM Convegno:**
**Anelli di Funzioni Continue** *See* **Symposia Mathematica**, (**53** #5225)
**Gruppi Infiniti** *See* **Symposia Mathematica**, (**53** #5225)
**Infinite groups** *See* **Symposia Mathematica**, (**53** #5225)
**Rings of continuous functions** *See* **Symposia Mathematica**, (**53** #5225)
**Symposia Mathematica** ★Symposia Mathematica. Vol. XVII. (**53** #5225)

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**Amirdžanov, G. P.** Functions defined on cartesian products of topological spaces. (Russian. English summary) **49** #1463
**Arya, Shashi Prabha** (*with* Deb, Mamata) On mappings almost continuous in the sense of Frolík. **53** #1504b
(*with* Deb, Mamata) On $\theta$-continuous mappings. **53** #3982
**Atalla, Robert E.** $P$-sets in $F'$-spaces. **50** #1198
**Baker, John Warren** Dispersed images of topological spaces and uncomplemented subspaces of $C(X)$. **47** #9517
**Bănescu, Gr.** (*with* Teodorescu, Nicolae Victor) Systems of inequalities. (Romanian. English summary) **48** #2974
**Beck, Anatole** (*with* Lewin, Jonathan; Lewin, Mirit) On compact one-to-one continuous images of the real line. **46** #8159

**Biswas, Nanigopal** Pseudo-continuity in topological spaces. **49** #11454
Conditions implying continuity of functions in topological spaces. **46** #6275

**Borges, Carlos R.** How to recognize homeomorphisms and isometries. **46** #4458

**Bruckner, Andrew M.** (*with* Ceder, Jack; Rosenfeld, Melvin) On invariant sets for functions. **52** #6644

**Bruteanu, Cristian** On some properties of quasicontinuous functions. (Romanian. French summary) **47** #7683

**Calica, Arnold B.** Reversible homeomorphisms of the real line. **46** #6265

**Ceder, Jack** *See* **Bruckner, Andrew M.; et al., 52** #6644

**Cezus, Frank A.** Pseudo-idempotents in semigroups of functions. **57** #13827

**Chew, Kim Peu** (*with* Mrówka, S.) Structures of continuous functions. XI. Some type of homomorphisms of general structures of continuous functions. (Russian summary) **55** #11194

**Childress, J. A.** *See* **Seidman, Stephen B., 51** #11408

**Cleveland, Richard** A global characterization of uniform continuity. **47** #4199

**Čoban, M. M.** *See* **Dodon, N. K., 58** #12895

**Cuartero Ruiz, Bienvenido** An approximation theorem. (Spanish) **51** #4138

**Deb, Mamata** *See* **Mathur, Asha, 53** #1504a; **Arya, Shashi Prabha, 53** #1504b *and* **Arya, Shashi Prabha, 53** #3982

**De Marco, Giuseppe** A characterization of $C(X)$ for $X$ strongly paracompact (or paracompact). **57** #7506

**Dodon, N. K.** (*with* Čoban, M. M.) Mappings of $P$-scattered spaces. (Russian) **58** #12895

**Fedorov, V. D.** Graphs of the continuity of mappings. (Russian) **58** #30959

**Feiock, R. E.** Cluster sets and joint continuity. **50** #5724

**Hamlett, T. R.** The at worst removable discontinuities of functions and cluster sets. **53** #6485
Conditions implying continuity of functions in topological spaces. **57** #4073
*See also* **Long, Paul E., 52** #4217

**Hansell, Roger W.** (*with* Wolk, E. S.) On continuous functions and convergence of nets. **53** #6486

**Herrington, Larry L.** (*with* Hunsaker, W. N.; Lindgren, William F.; Naimpally, S. A.) A counterexample concerning almost continuous functions. **48** #9640
*See also* **Long, Paul E., 52** #1608 *and* **Long, Paul E., 54** #8553

**Hunsaker, W. N.** *See* **Herrington, Larry L.; et al., 48** #9640

**Hušek, Miroslav** Continuous mappings on subspaces of products. **54** #3645

**Hwang, Suk Geun** Almost $c$-continuous functions. **57** #7508

**Impens, C.** On the continuity of the Cartesian multiplication. **57** #7507

**Jansen, A. V.** Open set correspondences and continuous functions. **55** #1283

**Karube, Takashi** Local compactness for families of continuous mappings and homeomorphism groups. **49** #6128

**Kitai, Carol** Strongly homogeneous spaces. **52** #11816

**Kohli, J. K.** A class of mappings containing all continuous and all semiconnected mappings. **58** #12896

**Kostyrko, Pavel** (*with* Neubrunn, Tibor; Šalát, Tibor) Density of one graph along another and some classes of closure spaces of functions. **47** #4200

**Kotov, Ju. I.** *See* **Simonjan, S. A.; et al., 57** #13828

**Krivoručko, A. I.** The power of the set of continuous functions. (Russian) **47** #4201

**Lewin, Jonathan** *See* **Beck, Anatole; et al., 46** #8159

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**Beckenstein, Edward** (*with* Narici, Lawrence; Suffel, Charles L.) ★Topological algebras. (**57** #13495)

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**Martin, John R.** A generalization of absolute retracts. 52 #1617

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**Dydak, Jerzy** On a paper: "On $D$-spaces and fundamental dimension in the sense of Borsuk" (Fund. Math. 89 (1975), no. 1, 13–22) by Y. Kodama. (Russian summary) (55 #9081)

**Haydon, Richard** On a problem of Pełczyński: Milutin spaces, Dugundji spaces and AE(0-dim). (54 #6069)
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Homotopy for small multifunctions. **48** #2991
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**Skordev, Genčo S.** Antipodal mappings. (Russian) **50** #3186
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**Spież, Stanisław** Movability and uniform movability. (Russian summary) **49** #11466
**Stanojević, Momir** On two mappings associated with multivalued and point-value mappings. **49** #11467
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**Sundaresan, Kondagunta** Extreme points of convex sets and selection theorems. **45** #1106
**Thomas, James W.** $\phi$-coherent multifunctions. **45** #2690
**Timohovič, V. L.** The absolute, and $H$-closed extensions. I. (Russian) **47** #2542
**Todorov, Vladimir T.** Nonexpansive mappings. (Russian. English summary) **58** #3096
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**Williams, G. K.** Mappings and decompositions. **47** #5816
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**Bânzaru, Titu** Multivalued almost periodic mappings. (Romanian. Russian and Germa summaries) (**54** #13457)
**Castaing, Charles** (*with* Valadier, Michel) ★Convex analysis and measurable multifunctions. (**57** #7169)
**Čeban, N. K.** Invariant sets in partially ordered semigroups of set-valued mappings of space. (Russian) (**45** #7691)
**Čoban, M. M.** Reduction theorems on the existence of continuous sections. Section over subsets of factor spaces of topological groups. (Russian) (**49** #10812)
**Crouzeix, Jean-Pierre** Continuité des applications linéaires multivoques. (Loose Englis summary) (**51** #3942)
**Daurés, Jean-Pierre** Sur l'absolue continuité des multi-applications. (**58** #30608)
**Dolecki, Szymon** Remarks on semicontinuity. (Russian summary) (**57** #1231)
**Eaves, B. Curtis** (*with* Saigal, Romesh) Homotopies for computation of fixed points o unbounded regions. (**47** #2580)
**Edgar, Gerald A.** Measurable weak sections. (**54** #7734)
**Finbow, Arthur S.** The fixed point set of real multi-valued contraction mappings. (**48** #7243)
**Gel'man, B. D.** A topological characteristic of many-valued mappings, and theorems of Kakutani type. (Russian) (**58** #24225)
**Gorlenko, S. V.** A generalized Baire theorem and its application. (Russian) (**58** #28363)
**Górniewicz, Lech** On non-acyclic multi-valued mappings of subsets of Euclidean spaces. (Russian summary) (**47** #4237)
**Hogan, William W.** Point-to-set maps in mathematical programming. (**49** #10372)
**Kiełtyka, Stanisław** (*with* Sobieszek, Wiesław) A generalization of the theorem on directional derivative for the maximum functional and its application. (**53** #2374)
**Liničuk, R. S.** Topological imbeddings, and the universality of certain spaces. (Ukrainian. English and Russian summaries) (**52** #1607)
The representation of mappings in the form of superpositions. (Russian) (**52** #9159)
**Maćkowiak, Tadeusz** Continua having the fixed point property for set-valued mappings. (Russian summary) (**51** #11452)
**Moreau, Jean-Jacques** Intersection of moving convex sets in a normed space. (**56** #1025)
**Popa, Valeriu** Multifunctions and bitopological spaces. (**54** #8583)
**Powers, Michael J.** Lefschetz fixed point theorems for a new class of multi-valued maps. (**48** #12508)
**Saigal, Romesh** *See* **Eaves, B. Curtis,** (**47** #2580)
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**Skordev, Genčo S.** Perturbations of vector fields. (Russian) (**49** #3968)
**Smithson, Raymond E.** Fixed point theorems for pseudo-monotone multifunctions. (**46** #8207)
Uniform convergence for multifunctions. (**46** #8164)
**Sobieszek, Wiesław** *See* **Kiełtyka, Stanisław,** (**53** #2374)
**Valadier, Michel** *See* **Castaing, Charles,** (**57** #7169)

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**Cellina, Arrigo** A selection theorem. **57** #13839
**Delode, Claude** (*with* Arino, Ovide; Penot, Jean-Paul) Champs mesurables et multisections. **56** #3789
**Fakhoury, Hicham** Sélections continues dans les espaces uniformes. **50** #11140
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**Kaniewski, Janusz** (*with* Pol, Roman) Borel-measurable selectors for compact-valued mappings in the non-separable case. (Russian summary) **53** #14405
**Kuratowski, Kazimierz** (*with* Maitra, Ashok) Some theorems on selectors and their applications to semi-continuous decompositions. (Russian summary) **52** #15359
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**Le Van Tu** Omega-Polish spaces and measurable selections. **58** #2707
**Linke, Ju. È.** Continuous selections of mappings that act in a ball of the conjugate space. (Russian) **53** #14406
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**aint-Raymond, Jean** Dérivation par rapport à une application. Existence d'exaves markoviens. **57** #13840
**carparo, Renato César** A theorem on the lifting of continuous selections. (Spanish) **58** #7550
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**scherl, Albert** (*with* Lehn, Jürgen) Two principles for extending probability measures. (**56** #12204)
**enamara, Mustapha** Sections mesurables extrémales d'une multiapplication. (**50** #5468)
**astaing, Charles** Sur l'existence des sections séparément mesurables et séparément continues d'une multi-application. (**58** #22459)
À propos de l'existence des sections séparément mesurables et séparément continues d'une multiapplication séparément measurable et séparément semi continue inférieurement. (**58** #28406)
**auty, Robert** Un théorème de sélection et l'espace des rétractions d'une surface. (**51** #6814)
**oban, M. M.** Multi-valued mappings and Borel sets. I, II. (Russian) (**51** #9016)
(*with* Vylov, V. M.) A certain theorem of Michael on sections. (Russian) (**52** #6661)
*See also* **Nedev, Stojan Ĭ.**, (**52** #9165)
**auer, Jerald P.** (*with* VanVleck, F. S.) Measurable selectors of multifunctions and applications. (**54** #1048)
**elode, Claude** (*with* Arino, Ovide; Penot, Jean-Paul) Champs mesurables d'espaces polonais. (English summary) (**52** #3463)
**vstigneev, I. V.** Measurable selection and the continuum axiom. (Russian) (**58** #17017)
**arnir-Monjoie, F. S.** Sélections continues de multifonctions. (English summary) (**58** #18341)
**aver, William E.** A covering property for metric spaces. (**51** #1756)
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**Kosiński, A.)** *See* **Zelins'kiĭ, Ju. B.**, (**52** #11929)
**uratowski, Kazimierz** On partitions of complete spaces which do not admit analytic selectors and on some consequences of a theorem of Gödel. (**53** #5308)
**eese, S. J.** Multifunctions of Souslin type. (**54** #5418a (E **54** #5418b) ) .
Measurable selections in normed spaces. (**55** #10634)
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**Lehn, Jürgen** Massfortsetzungen und Aumann's Selektionstheorem. (**54** #5419)
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**Linke, Ju. È.** Sublinear operators and continuous selectors. (Russian) (**52** #6490)
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**McClendon, James F.** Metric families. (**52** #11913)
**Moreau, Jean-Jacques** Sélections de multiapplications à rétraction finie. (**51** #3991)
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**Parthasarathy, T.** ★Selection theorems and their applications. (**54** #5420)
**Penot, Jean-Paul** *See* **Delode, Claude; et al.**, (**52** #3463)
**Robertson, Alex P.** On measurable selections. (**53** #3242)
**Scarparo, Renato César** A selection theorem for continuous inverse simultaneous carriers. (Spanish) (**50** #14632)
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**Shiau, Chyi** (*with* Tan, Kok Keong; Wong, Chi Song) Quasi-nonexpansive multi-valued maps and selections. (**51** #8899)
**Tan, Kok Keong** *See* **Shiau, Chyi; et al.**, (**51** #8899)
**VanVleck, F. S.** *See* **Dauer, Jerald P.**, (**54** #1048)
**Vylov, V. M.** *See* **Čoban, M. M.**, (**52** #6661)
**Wong, Chi Song** *See* **Shiau, Chyi; et al.**, (**51** #8899)
**Zelins'kiĭ, Ju. B.** Certain problems of A. Kosiński (Fund. Math. **46** (1958), 47–59). (Russian) (**52** #11929)

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**Blair, Robert L.** Proofs of Urysohn's lemma and related theorems by means of Zorn's lemma. **49** #1474
**Błaszczyk, Aleksander** A factorization theorem and its application to extremally disconnected resolutions. **48** #9649
**Bondar, A. V.** Solution of a certain problem of Stoïlow. (Russian) **49** #3830
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**Gol'dman, M. A.** Certain classes of mappings. (Russian. Latvian and English summaries) **47** #9534
**Hamlett, T. R.** Semi-continuous functions. **54** #1163
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**Sander, Wolfgang** Verallgemeinerungen eines Satzes von S. Piccard. (English summary) **51** #9018
**Sharma, P. L.** (*with* Anki Reddy, K. C.; Funakosi, Shunsuke) Remarks on uniform space valued almost periodic functions depending on parameters. **54** #13843
**Vilímovský, Jiří** Uniformly continuous Banach valued mappings. **57** #1409
**Zaharov, V. K.** The Cousin problem for extended continuous functions on an extremally disconnected space. (Russian) **47** #5817
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**Cengiz, Babattin** A generalization of the Banach-Stone theorem. (**47** #9258)
**Kostyrko, Pavel** Indicatrix of Banach and a space of continuous functions. (**46** #3705)
**Levine, Norman** On the composition of relations in topological spaces. (**53** #11571)
**Saigal, Romesh** (*with* Simon, Carl P.) Generic properties of the complementarity problem. (**48** #3504)
**Simon, Carl P.** *See* **Saigal, Romesh**, (**48** #3504)
**Szufla, Stanisław** Solutions sets of nonlinear equations. (Russian summary) (**49** #9698)
**Vinokurov, V. A.** Regularization by continuous mappings. (Russian) (**45** #4232)

## 54Dxx Fairly general properties

**Aleksandrov, P. S.** (*with* Uryson, P. S.) ★Мемуар о компактных топологических пространствах. (Russian) [Memoir on compact topological spaces] **51** #6719
**Arhangel'skiĭ, A. V.** On hereditary properties. **47** #7688
**Baškirov, A. I.** Topological spaces that are determined by their subspaces. (Russian) **48** #2992
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**Roitman, Judith** A space of small spread without the usual properties. **48** #9651
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**Uryson, P. S.** *See* **Aleksandrov, P. S.**, **51** #6719

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**Kramer, Thomas R.** On the product of two topological spaces. (**52** #9155)
**Lutzer, David J.** On generalized ordered spaces. (**48** #3018)
**Rudin, Mary Ellen** ★Lectures on set theoretic topology. (**51** #4128)
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**Arhangel'skiĭ, A. V.** (*with* Wiegandt, Richard) Connectednesses and disconnectednesses in topology. **51** #4162
**Baggs, Ivan** A connected Hausdorff space which is not contained in a maximal connected space. **51** #1729
**Carpintero Organero, Pablo** On topological spaces without proper homeomorphisms and ordered sets without proper similitudes. I. (Spanish) **56** #6597a
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**Chacron, Joseph** Théorie des équivalences discrètes, applications aux espaces semi-connexes ou hyperdiscontinus. **56** #6598
**Chakraborty, Shyama P.** On invertible space. **49** #11468
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**Collins, P. J.** Connection properties in topological spaces. **46** #851
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**Coppin, Charles A.** Continuous functions from a connected locally connected space into a connected space with a dispersion point. **45** #5972

**Corning, F. R.** (*with* Gregorio, Carlos G. D.) On incompressible spaces. (Serbo-Croatian summary) **55** #4099

**Császár, Klára** Separation and connectedness. **57** #13843

**Curtis, Douglas W.** Some theorems and examples on local equiconnectedness and its specializations. **45** #1124

**Cvid, S. F.** Countable connected spaces. (Russian) **56** #16565

**Das, Phullendu** Note on semi-connectedness. **54** #11270

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**Dyer, Eldon** (*with* Eilenberg, Samuel) An adjunction theorem for locally equiconnected spaces. **47** #7689

**Eberhart, Carl** (*with* Fugate, J. B.; Mohler, Lee) Spaces which cannot be written as a countable disjoint union of closed subsets. **48** #9652 (E **54** #11271)

(*with* Fugate, J. B.; Mohler, Lee) Errata to: "Spaces which cannot be written as a countable disjoint union of closed subsets" (Canad. Math. Bull. 16 (1973), 435–437). **54** #11271

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**FitzGerald, R. W.** Connected sets with a finite disconnection property. **51** #1730

**Fitzpatrick, Ben, Jr.** A note on countable dense homogeneity. **46** #852

**Fugate, J. B.** *See* **Eberhart, Carl; et al., 48** #9652 (E **54** #11271) *and* **Eberhart, Carl; et al., 54** #11271

**Gentry, Karl R.** (*with* Goolsby, R. C.; Hoyle, Hughes B., III) Applications of weakly equivalent topologies. (Serbo-Croatian summary) **53** #11570

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**Gregorio, Carlos G. D.** *See* **Corning, F. R., 55** #4099

**Guthrie, J. A.** (*with* Reynolds, Donald F.; Stone, H. E.) Connected expansions of topologies. **48** #7201

(*with* Stone, H. E.) Spaces whose connected expansions preserve connected subsets. **48** #9653

**Hadžiivanov, Nikolaĭ G.** Connectedness. (Bulgarian. Russian and English summaries) (See Zbl **356** #54019)

(*with* Hamamdžiev, Atanas L.) An example of a compact Hausdorff $M$-connected space which is not strongly $M$-connected. **55** #1298

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**Hamamdžiev, Atanas L.** *See* **Hadžiivanov, Nikolaĭ G., 55** #1298 *and* **Hadžiivanov, Nikolaĭ G., 57** #7518

**Hammer, Preston C.** (*with* Jones, Richard M.) Connected sets: Bases and metrics. **45** #5966

**Hartig, Donald G.** Local connectedness and pseudocompactness in completely regular spaces. **57** #1410

**Hoyle, Hughes B., III** *See* **Gentry, Karl R.; et al., 53** #11570

**Hursch, J. L., Jr.** (*with* Verbeek, A.) A class of connected spaces with many ramifications. **51** #6720

(*with* Verbeek, A.) A class of connected spaces with many ramifications. **47** #4227

**Jameson, Graham** A variant of a theorem of Sierpiński concerning partitions of continua. **46** #6284

**Jones, Richard M.** *See* **Hammer, Preston C., 45** #5966

**Kannan, V.** A countable connected Urysohn space containing a dispersion point. **45** #5967

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**Kohli, J. K.** A class of spaces containing all connected and all locally connected spaces. **58** #2710

**Král, Josef** An example of a harmonic sheaf. (Czech. Loose English and Russian summaries) **57** #4083

**Larmore, Lawrence L.** A connected countable Hausdorff space, $S_\alpha$ for every countable ordinal $\alpha$. **48** #12468

**Lehman, B.** Some conditions related to local connectedness. **49** #9807

**Leuschen, J. E.** (*with* Sims, Benjamin T.) Stronger forms of connectivity. **50** #3187

**Lisica, Ju. T.** Spaces that are connected and locally connected in all dimensions. (Russian) **46** #4469

**Mamuzic, Zlatko P.** ★Koneksni prostori. (Serbo-Croatian) [Connected spaces] **51** #4163

**McWaters, M. M.** (*with* Reed, J. H.) Semi-locally connected spaces and unicoherence. (Russian summary) **47** #1018

**Miller, Gary Glenn** (*with* Pearson, B. J.) On the connectification of a space by a countable point set. **45** #1127

**Mohler, Lee** *See* **Eberhart, Carl; et al., 48** #9652 (E **54** #11271) *and* **Eberhart, Carl; et al., 54** #11271

**Muckenhoupt, Benjamin** (*with* Williams, Vernon) Borel measures on connected door spaces. **53** #1517

**Nieminen, T.** On ultrapseudocompact and related spaces. **58** #30964

**Nishiura, Togo** (*with* Tymchatyn, E. D.) Hereditarily locally connected spaces. **55** #9023

**Pearson, B. J.** *See* **Miller, Gary Glenn, 45** #1127

**Pipitone, Vincenzo** (*with* Russo, Giuseppina) Spazi semiconnessi e spazi semiaperti. **57** #4084

**Poljakov, A. I.** The property of maximal connectivity. (Russian. English summary) **45** #2675

**Rajagopalan, M.** *See* **Kannan, V., 49** #3831

**Reed, J. H.** *See* **McWaters, M. M., 47** #1018

**Reynolds, Donald F.** Preservation of connectedness under extensions of topologies. **49** #3832

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**Ritter, Gerhard X.** A connected, locally connected, countable Urysohn space. **55** #6357

**Russo, Giuseppina** *See* **Pipitone, Vincenzo, 57** #4084

**Salicrup López, Graciela** (*with* Vázquez, Roberto) Maximal objects in connection categories of Top. (Spanish) **53** #14407

**Sims, Benjamin T.** *See* **Leuschen, J. E., 50** #3187

**Skordev, Dimit″r** Indecomposable elements in the sense of Ja. Tagamlickiĭ. (Russi **48** #2993

**Stone, H. E.** *See* **Guthrie, J. A.; et al., 48** #7201 *and* **Guthrie, J. A., 48** #9653

**Tanré, Daniel** Connexité locale. **54** #11272

**Thomas, J. Pelham** Maximal connected Hausdorff spaces. **53** #14408

**Tymchatyn, E. D.** Some $n$-arc theorems. **57** #1411

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**Vázquez, Roberto** *See* **Salicrup López, Graciela, 53** #14407

**Verbeek, A.** *See* **Hursch, J. L., Jr., 47** #4227 *and* **Hursch, J. L., Jr., 51** #6720

**Ward, A. J.** Solution of two problems of Arhangel′skiĭ and Wiegandt. **58** #18343

**Wiegandt, Richard** *See* **Arhangel′skiĭ, A. V., 51** #4162

**Williams, Vernon** *See* **Muckenhoupt, Benjamin, 53** #1517

**Yoshioka, Iwao** On connected locally connected spaces with cut points. **46** #4470

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**Bennett, Ralph** Countable dense homogeneous spaces. (**46** #866)

**Bondarev, A. S.** The completeness of homomorphic images of complete vector latti and Boolean algebras. (Russian) (**58** #424)

**Bondareva, O. N.** Convergence of spaces with a relation and game-theoretic consequences. (Russian) (**57** #18854)

**Brown, Jack B.** Totally discontinuous connectivity functions. (**46** #9921)

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**Steinlage, Ralph C.** *See* **Gantner, T. E.**, **52** #1638
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**Ward, A. J.** A generalisation of almost-compactness, with an associated generalisation of completeness. **52** #11851
**Williams, James** Locally uniform spaces. **45** #5950
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**Alò, Richard A.** (*with* Shapiro, Harvey L.) ★Normal topological spaces. (**52** #11808)
**Antonovskiĭ, M. Ja.** (*with* Boltjanskiĭ, V. G.; Sarymsakov, T. A.) ★Topological semifields and their applications to general topology. (**58** #12280)
**Bălan, Trandafir** (*with* Predoi, Maria) La convergence bidimensionelle dans l'espace des fonctions. (**49** #11457)
**Bânzaru, Titu** (*with* Crivat, N.) Structures uniformes sur l'espace des parties d'un espace uniforme et quasicontinuité des applications multivoques. (**53** #6482)
**Bentley, H. L.** (*with* Herrlich, Horst) Extensions of topological spaces. (**55** #6368)
**Berthiaume, Gilles** On quasi-uniformities in hyperspaces. (**58** #2679)
**Blasco Olcina, José Luis** $\mu_F$-spaces. (Spanish. English summary) (**53** #9150)
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**Bourdaud, Gérard** Sur le théorème de complétion de Buchwalter-Pupier. (**55** #1291)
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**Carlson, John W.** Topologies generated by orders and quasi-uniform structures. (Italian summary) (**53** #11584)
**Charalambous, M. G.** The dimension of inverse limits. (**53** #14443)
**Ćirić, Ljubomir B.** A certain class of mappings in topological spaces. (**46** #8200)
**Cochran, Allan C.** (*with* Trail, Robert B.) Singly generated uniform convergence spaces. (**57** #1432)
**Cossi, Ernesto Bruno** Existence of continuous extension of homeomorphisms in uniform spaces. (**54** #8555)
**Crivat, N.** *See* **Bânzaru, Titu**, (**53** #6482)
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**Deaibes, Ali** Espaces uniformes et espaces de mesures. (**58** #1074)
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**De Marco, Giuseppe** Sulla uniformità naturale nei gruppi topologici. (**47** #3590)
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**Frolík, Zdeněk** Measure-fine uniform spaces. I. (**57** #6343)
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**Gähler, Werner** Über Limes-und pseudouniformisierbarkeit. (**50** #8405)
Mengenkonvergenz und verallgemeinerte gleichmässige Konvergenz–ein Beitrag zur Theorie der Differenzierbarkeit. (**50** #14216)
**Garbaccio Bogin, Rosanna** Spazi quoziente di spazi uniformi. (English summary) (**53** #3978)
**Gazik, R. J.** (*with* Kent, Darrell C.) Coarse uniform convergence spaces. (**53** #3973)
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*See also* **Kent, Darrell C.**, (**55** #4082)
**Gherman, Rodica** A new definition of uniform convergence structures. (Romanian. English summary) (**55** #1266)
**Gordon, Hugh** Rings of functions determined by zero-sets. (**47** #9529)
**Hager, Anthony W.** An approximation technique for real-valued functions. (**45** #795)
A class of function algebras (and compactifications, and uniform spaces). (**54** #13841)
**Harris, Douglas** Representation of spaces. (**50** #11122)
**Henson, C. Ward** The monad system of the finest compatible uniform structure. (**51** #6779)
**Herrlich, Horst** Topological functors. (**49** #7970)
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**Herrmann, Robert A.** The nonstandard theory of semi-uniform spaces. (**58** #12992)
**Hitchcock, A. G.** Uniform hyperspaces and Hausdorff completions. (**53** #1503)
**Hušek, Miroslav** Lattices of reflections and coreflections in continuous structures. (**56** #3798)
**Kent, Darrell C.** (*with* Gazik, R. J.) Minimal uniform convergence spaces. (**55** #4082)
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**Kok, H.** On tree-like spaces and the intersection of connected subsets of a connected $T_1$-space. (**50** #11142)
**Kulpa, Władysław** Proximity classes of uniformities. (**52** #11840)
**Mattson, Don A.** On completions of proximity and uniform spaces. (**56** #16574)
**Metzger, J. M.** Quasi-proximities and quasi-uniformities. (**47** #1028)
**Mozzochi, Charles J.** (*with* Gagrat, M. S.; Naimpally, S. A.) ★Symmetric generalized

topological structures. (**58** #2732)
**Naimpally, S. A.** *See* **Mozzochi, Charles J.; et al.,** (**58** #2732)
**Pachl, Jan** Free uniform measures. (**50** #7468)
**Pełczyński, A.** (*with* Toruńczyk, Henryk) Certain non-locally convex linear metric spaces homeomorphic to Hilbert spaces. (**58** #24275)
**Pittas, P. A.** (*with* Swaminathan, Srinivasa) Uniform spaces of countably paracompact character. (**47** #7691)
**Predoi, Maria** *See* **Bălan, Trandafir,** (**49** #11457)
**Pupier, René** Topological completion of a product. (**50** #14640)
**Reed, Ellen E.** Uniformities obtained from filter spaces. (**46** #860)
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**Vilímovský, Jiří** Generation of coreflections in categories. (**51** #11407 (EA **52**) )
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## 54E20 Stratifiable spaces, cosmic spaces, etc.

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**Borges, Carlos R.** (*with* Lutzer, David J.) Characterizations and mappings of $M_i$ spaces. **50** #14681
**Burke, Dennis K.** (*with* Lutzer, David J.) Recent advances in the theory of generalized metric spaces. **55** #1318
**Cauty, Robert** Sur les espaces d'applications dans les CW-complexes. **53** #11579
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**Fletcher, Peter** (*with* Lindgren, William F.) $\theta$-spaces. **58** #18362
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**Heath, Robert W.** On $p$-spaces, $q$-spaces, $r$-spaces and "$s$" spaces. **52** #9189
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(*with* Lutzer, David J.; Zenor, Phillip) Monotonically normal spaces. **51** #9030
**Henry, Michael** Stratifiable spaces, semi-stratifiable spaces, and their relation through mappings. **47** #1032
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**Reed, George M.** On dense subspaces of certain topological spaces. **46** #4492
**Sabella, Ralph R.** Properties of neighboring sequences in stratifiable spaces. **55** #6371
**San Ou, Syōji** A note on $\Xi$-product. **56** #1269
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**Berney, E. S.** A regular Lindelöf semi-metric space which is not cosmic. (**52** #9190)
**Christian, Upton J.** Concerning certain minimal cover refineable spaces. (**51** #9022)
**Fletcher, Peter** (*with* Lindgren, William F.) On $w\Delta$-spaces, $w\sigma$-spaces and $\Sigma^{\#}$-spaces. (**58** #12919)
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**Davis, Sheldon W.** On $\mathcal{F}_r$-spaces. (**58** #12912)
**Harley, Peter W., III** (*with* Stephenson, R. M., Jr.) Symmetrizable and related spaces. (**54** #6092)
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## 54E30 Moore spaces

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**Alster, Kazimierz** (*with* Pol, Roman) Moore spaces and collectionwise Hausdorff property. (Russian summary) **52** #15383 (EA **53**)
**Al-Zoobaee, O. H.** Screenable Moore space. (Arabic summary) **49** #7987
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**Bennett, Harold R.** (*with* Berney, E. S.) On certain generalizations of developable spaces. **49** #6177
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**Berney, E. S.** *See* **Bennett, Harold R.,** **49** #6177
**Burke, Dennis K.** A nondevelopable locally compact Hausdorff space with a $G\delta$-diagonal. **47** #7702
**Carlson, John W.** Topological properties in nearness spaces. **57** #7540
**Chaber, J.** (*with* Čoban, M. M.; Nagami, Keiô) On monotonic generalizations of Moore spaces, Čech complete spaces and $p$-spaces. **49** #7988
**Čoban, M. M.** *See* **Chaber, J.; et al.,** **49** #7988
**Cook, David E.** Compactness and strong separation. **47** #4221
**Cook, Howard** (*with* Gibson, Laurie) The $j$-link property in Moore spaces. **56** #6616
**Eidswick, J. A.** The undecidability of a fundamental problem in cluster set theory. **54** #11287
**Fitzpatrick, Ben, Jr.** Some topologically complete spaces. **45** #7710 (EA **45**)
**Fleissner, William G.** Normal Moore spaces in the constructible universe. **50** #14682
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**Fletcher, Peter** (*with* Lindgren, William F.) Erratum: "Orthocompactness and strong Čech completeness in Moore spaces" (Duke Math. J. **39** (1972), 753–766). **48** #3013
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**Green, John William** Moore-closed spaces, completeness and centered bases. **51** #1754
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Moore-closed and locally Moore-closed spaces. **57** #7541
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**Lindgren, William F.** *See* **Fletcher, Peter,** **48** #3013
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**Nagami, Keiô** *See* **Chaber, J.; et al., 49** #7988
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**Pareek, C. M.** Moore spaces, semi-metric spaces and continuous mappings connected with them. **47** #1034
**Phillips, Thomas M.** Completeness in Aronszajn spaces. **50** #14683
Some observations on semicompletable Moore spaces. **56** #9495
**Pixley, Carl P.** (*with* Roy, Prabir) Uncompletable Moore spaces. **53** #1529
**Pol, Roman** *See* **Alster, Kazimierz, 52** #15383 (EA **53**)
**Przymusiński, Teodor C.** (*with* Tall, Franklin D.) The undecidability of the existence of a non-separable normal Moore space satisfying the countable chain condition. **51** #4176
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**Reed, George M.** On the metrizability of dense subspaces and the Souslin property in Moore spaces. **50** #1209
On screenability and metrizability of Moore spaces. **45** #1114
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**Reed, Joylyn N.** On complete and semicomplete first countable spaces. **51** #9033
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**Roy, Prabir** *See* **Pixley, Carl P., 53** #1529
**Rudin, Mary Ellen** The metrizability of normal Moore spaces. **50** #11170
(*with* Starbird, Michael) Some examples of normal Moore spaces. **56** #6618
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**Starbird, Michael** *See* **Rudin, Mary Ellen, 56** #6618
**Stavrova, D.** Nonmetrizable normal separable Moore spaces. (Russian) **53** #14431
**Tall, Franklin D.** A set-theoretic proposition implying the metrizability of normal Moore spaces. **45** #9285 (E **48** #5016)
Erratum: "A set-theoretic proposition implying the metrizability of normal Moore spaces" (Proc. Amer. Math. Soc. **33** (1972), 195–198). **48** #5016
On the existence of normal metacompact Moore spaces which are not metrizable. **51** #13992
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**Worrell, John M., Jr.** Locally separable Moore spaces. **58** #12929

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**Aarts, J. M.** (*with* Lutzer, David J.) Completeness properties designed for recognizing Baire spaces. (**52** #1642)
(*with* Lutzer, David J.) On constructing bases in certain complete spaces. (**54** #6088)
**Alster, Kazimierz** (*with* Przymusiński, Teodor C.) Normality and Martin's axiom. (**54** #3652)
**Arhangel'skiĭ, A. V.** On bicompacta which are unions of two subspaces of a certain type. (**58** #24197)
**Bennett, Harold R.** (*with* McLaughlin, Thomas G.) ★A selective survey of axiom-sensitive results in general topology. (**53** #5306)
**Boone, James R.** Concerning collectionwise Hausdorff spaces. (**54** #3653)
**Davis, Sheldon W.** (*with* Reed, George M.; Wage, Michael L.) Further results on weakly uniform bases. (**52** #15365)
**van Douwen, Eric K.** The Pixley-Roy topology on spaces of subsets. (**55** #13364)
**Eidswick, J. A.** A topological translation of a fundamental problem in cluster set theory. (**51** #13158)
**Fleissner, William G.** Applications of collectionwise Hausdorff. (**50** #14655)
*See also* **Wage, Michael L.; et al.,** (**53** #14413)
**Fletcher, Peter** (*with* Lindgren, William F.) Orthocompactness and strong Čech completeness in Moore spaces. (**47** #1029 (E **48** #3013) )
**Heath, Robert W.** (*with* Lutzer, David J.) The Dugundji extension theorem and collectionwise normality. (Russian summary) (**51** #11424)
**Hodel, R. E.** Moore spaces and $w\,\Delta$-spaces. (**46** #6290)
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**Lutzer, David J.** *See* **Heath, Robert W.,** (**51** #11424); **Aarts, J. M.,** (**52** #1642) *and* **Aarts, J. M.,** (**54** #6088)
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**Reed, George M.** (*with* Zenor, Phillip) Metrization of Moore spaces and generalized manifolds. (**54** #13868)
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**Shelah, Saharon** Whitehead groups may be not free, even assuming CH. I. (**57** #9538)
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**Williams, Scott W.** Transfinite cardinal dimension and separability. **47** #9575

**Zambahidze, L. G.** The $\gamma$-dimension of topological spaces. (Russian. Georgian a English summaries) **46** #6329

A certain dimension-like function, and its connection with the inductive dimensions and bicompactification theory. (Russian) **49** #7995

(*with* Pasynkov, B. A.) Behavior of functions of dimension type in certain speci classes of spaces. (Russian. Georgian and English summaries) **54** #6104

(*with* Tovodros, S. F.) The dimension dm and its application to the classificatio of locally connected continua. (Russian. Georgian and English summaries) 55 #11221

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**Zolotarev, V. P.** Finite-to-one quotient maps that raise the dimension. (Russian) 47 #9576

The dimension of subspaces. (Russian. English summary) **52** #15406

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**Aarts, J. M.** (*with* Nishiura, Togo) The Eilenberg-Borsuk duality theorem. (**46** #848)

**Arhangel′skiĭ, A. V.** A survey of some recent advances in general topology, old and ne problems. (**55** #1269)

**Bennett, Ralph** On the fundamental dimension of compact spaces. (Russian summary (**47** #5814)

**Boone, James R.** On the cardinality relationships between discrete collections and ope covers. (**57** #4089)

**Broughan, Kevin A.** Uniformization of topological spaces with small inductive dimensio zero. (**48** #1181)

★Invariants for real-generated uniform topological and algebraic categories (**54** #13866)

Four metric conditions characterizing Čech dimension zero. (**58** #24202)

**Čigogidze, A. Č.** Wallman $R$-extensions, and the dimension of extensions of completel regular spaces. (Russian. Georgian and English summaries) (**58** #12922)

**Ćirić, M. Dušan** Dimension of bitopological spaces. (**51** #13994)

**Čoban, M. M.** The topological structure of subsets of topological groups and of thei quotient spaces. (Russian) (**53** #9124)

**Deák, Ervin** Basisgrad, Separabilitätsgrad und Richtungsdimension. (**52** #6637)

Theory and applications of directional structures. (**52** #11860)

**Dvališvili, B. P.** The dimension and certain other questions of the theory of bitopological spaces. (Russian. English summary) (**58** #18366)

**Dydak, Jerzy** On a paper: "On $D$-spaces and fundamental dimension in the sense of Borsuk" (Fund. Math. **89** (1975), no. 1, 13–22) by Y. Kodama. (Russian summary) (**55** #9081)

**Eberhart, Carl** (*with* Nadler, Sam B., Jr.) The dimension of certain hyperspaces. (**46** #2650)

**Edwards, Robert D.** Dimension theory. I. (**52** #15477)

**Fleischer, Isidore** (*with* Reyes, Gonzalo E.) À travers la dimension zéro. (**48** #7212)

**Fletcher, Peter** (*with* McCoy, Robert A.; Slover, Rebecca) A note on boundedly countably paracompact spaces. (**45** #9302)

**Gruenhage, Gary** (*with* Zenor, Phillip) Metrization of spaces with countable large basis dimension. (**52** #15388)

Large basis dimension and metrizability. (**52** #15387)

**Hansen, A. B.** (*with* Sternfeld, Y.) On the characterization of the dimension of a compact metric space $K$ by the representing matrices of $C(K)$. (**53** #11351)

**Ivanov, A. V.** The hereditary separability and dimension of products of bicompacta. (Russian) (**58** #2677)

**Joiner, Charles** Free topological groups and dimension. (**54** #448)

**Keesling, James E.** Mappings and dimension in metric spaces. (**46** #6268)

**Kodama, Yukihiro** On D-spaces and fundamental dimension in the sense of Borsuk. (**54** #6133 (E **55** #9081) )

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**Kucia, Anna** (*with* Kulpa, Władysław) Spaces having uniformities with linearly ordered bases. (Polish summary) (**48** #5015)

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**Lisica, Ju. T.** Extension of sequences that approximate a given compactum. (Russian) (**54** #8561)

**Madirimov, M.** The extension of equivariant mappings. (Russian) (**52** #15411)

**McCoy, Robert A.** *See* **Fletcher, Peter; et al.,** (**45** #9302)

**Morita, Kiiti** The Hopf extension theorem for topological spaces. (**52** #1678)

**Nadler, Sam B., Jr.** *See* **Eberhart, Carl,** (**46** #2650)

**Nagata, Jun-iti** On Hyman's *M*-space. (**50** #11185)

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**Nowak, Sławomir** Some properties of fundamental dimension. (**52** #4225)

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**Nyikos, Peter J.** A survey of zero-dimensional spaces. (**56** #1245)

**Ostaszewski, A. J.** A perfectly normal countably compact scattered space which is not strongly zero-dimensional. (**56** #13184)

**Popoola, J. O.** (*with* Tweddle, I.) On the dimension of a complete metrizable topological vector space. (**56** #12811)

**Reyes, Gonzalo E.** *See* **Fleischer, Isidore,** (**48** #7212)

**Savinov, N. V.** An example of a perfectly normal bicompactum without intermediate dimensions. (Russian. English summary) (**54** #11265)

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**Smirnov, Ju. M.** Sets of *H*-fixed points are absolute extensors. (Russian) (**52** #15412)

**Soniat, Leonard E.** Characterizations of uniformity-dependent dimension functions. (**46** #2646)

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**Ul′janov, V. M.** Bicompact extensions with the first axiom of countability that do not increase weight and dimension. (Russian) (**52** #15334)

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**Zervos, Spiros P.** Some relations between old and modern considerations on topological dimension: its fundamental role in the foundation of ancient Greek geometry. (**49** #8)

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**Martin, Harold W.** Strongly rigid metrics and zero dimensionality. **56** #13181

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**Allen, Keith R.** Dendritic compactification. (**51** #11431)

**Beck, Anatole** (*with* Lewin, Jonathan; Lewin, Mirit) On compact one-to-one continuous images of the real line. (**46** #8159)

**Brechner, Beverly L.** (*with* Duda, Edwin) A characterization of monotone open retracts of a 2-cell. (**55** #9017)

**Charatonik, `Janusz J.** Irreducible continua in monostratiform λ-dendroids. (Russian summary) (**50** #3201)

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**Ingram, W. T.** An uncountable collection of mutually exclusive planar atriodic tree-like continua with positive span. (**50** #8472)

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**Pfeffer, Washek F.** On involutions of a circle. (**46** #878)

**Shilepsky, Arnold C.** Homogeneity by isotopy for simple closed curves. (**47** #7725)

**Snay, Richard A.** Decompositions of $E^3$ into points and countably many flexible dendrites. (**52** #15474)

**Tymchatyn, E. D.** Hyperspaces of hereditarily indecomposable plane continua. (**53** #9128)

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**Ward, Lewis E., Jr.** Fixed point sets. (**51** #4205)

**Williams, James** Regarding arc-wise accessibility in the plane. (**49** #10884)

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**Dickman, Raymond F., Jr.** Unicoherence, $C$-separated sets and non-alternating maps. **51** #1783

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(*with* Rubin, Leonard R.) $C$-separated sets and unicoherence. **48** #12485

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**Duda, Edwin** Weak-unicoherence. **52** #6683

**García Máynez, Adalberto** Some results on unicoherent spaces. **58** #24208

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**Guintchev, Ivan** Concerning unicoherence of continua. **57** #1445

**Hays, T. E.** Hereditarily unicoherent continua and monotone structures. **57** #4134

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**Maćkowiak, Tadeusz** On smooth continua. **51** #1784

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**Smith, Michel** The irreducibility of continua which are the inverse limit of a collection of Hausdorff arcs. **55** #1330

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**Tymchatyn, E. D.** (*with* Hunt, J. H. V.) The theorem of Miss Mullikin-Mazurkiewicz-van Est for unicoherent Peano spaces. **47** #9578

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**Clapp, M. H.** (*with* Dickman, Raymond F., Jr.) Unicoherent compactifications. (**51** #13989)

**Dickman, Raymond F., Jr.** *See* **Clapp, M. H.**, (**51** #13989)

**Iliadis, Stavros** The classification of hereditarily decomposable continua. (Russian. English summary) (**51** #4186)

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**Hadžiivanov, Nikolaĭ G.** Continuous mappings of hobnails into Euclidean spaces. (Bulgarian. Russian and English summaries) **50** #8476

Continuous mappings of knobs into $\mathbf{R}^n$. (Russian. English summary) **49** #9821

**Hunt, J. H. V.** A connectivity map $f:S^n\to S^{n-1}$ does not commute with the antipodal map. **47** #9579

**Kellum, Kenneth R.** An almost continuous function $f\colon S^n\to S^m$ which commutes with the antipodal map. **53** #1542

**Loginov, È. A.** Topological mapping of a convex body onto a ball. (Russian) **56** #16594

**Michaelides, George J.** Complements of solenoids in $S^3$ are $m$-spaces. **57** #10686

**Minc, Piotr** Remarks on antipodes. (Russian summary) **57** #1446

**Nowiński, Krzysztof** A generalization of the Borsuk-Ulam antipodal theorem. **50** #11199

**Patkowska, Hanna** On the non-quasi-embeddability of the $n$-umbrella into any $n$-manifold. (Russian summary) **57** #1447

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**Kleiber, Martin** A topological characterization of the real numbers. **48** #9685

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**Swart, Johan** An axiomatic topological characterization of an uncountable product of real lines. (Italian summary) **54** #13879

**Tognoli, Alberto** Sugli spazi metrici numerabili. (English summary) **51** #14006

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**Curtis, Douglas W.** (*with* Schori, R. M.) Hyperspaces of polyhedra are Hilbert cubes. (**58** #12892)

**de Groot, Johannes H.** On the topological characterization of manifolds. (**50** #8533)

**Gruenhage, Gary** *See* **Schoenfeld, Alan H.**, (**51** #14005)

**Hagopian, Charles L.** (*with* Rogers, James T., Jr.) A classification of homogeneous, circle-like continua. (**57** #4129)

**Huckabay, Gary M.** On the classification of locally compact separable metric spaces. (**58** #12991)

**Humke, Paul D.** Baire category and disjoint rectilinear accessibility. (**56** #563)

**Loveland, L. D.** A metric characterization of a simple closed curve. (**53** #9170)

**Nitka, W.** *See* **Berard, Anthony D., Jr.**, (**50** #8464)

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**Schoenfeld, Alan H.** (*with* Gruenhage, Gary) An alternate characterization of the Cantor set. (**51** #14005)

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### 54F99 None of the above, but in this section

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A correction to my paper: "Some topological extensions of plane geometry" (Rev Colombiana Mat. **9** (1975), no. 3-4, 125–153). **57** #7551b

**Brouwer, A. E.** ★Treelike spaces and related connected topological spaces. **57** #1388

**Calvert, I.** On the closure of a class of subsets of the real line. **57** #4136

**Cater, F. S.** Separation properties of disk planes. **57** #7552

**Chakraborty, S. P.** On novel schistic spaces. **56** #3811

**De Wilde, Marc** The Baire property in spaces of functions and product spaces. (French summary) **58** #2756

**van Douwen, Eric K.** Nonhomogeneity of products of preimages and $\pi$-weight. **58** #30998

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**Šapirovskiĭ, B. È.** The imbedding of extremally disconnected spaces in bicompacta b-points and weight of pointwise normal spaces. (Russian) **52** #15410

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**Wage, Michael L.** Extremally disconnected $S$-spaces. **56** #16595

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On the imbedding of extremally disconnected spaces into bicompacta. (**50** #8439)

**Gonshor, Harry** Projective covers as subquotients of enlargements. (**50** #1193)

**Kunen, Kenneth** Some points in $\beta N$. (**55** #106)

**Malyhin, V. I.** Extremally disconnected and nearly extremally disconnected groups. (Russian) (**52** #3419)

**Mioduszewski, Jerzy** On a method which leads to extremally disconnected covers. (**50** #14639)

**Thompson, Travis** $S$-closed spaces. (**54** #13849)

### 54G10 *P*-spaces

**Dodon, N. K.** The dimension functions on $\mathcal{P}$-dispersed spaces. (Russian) **58** #30999

**Levy, Ronnie** Showering spaces. **55** #11223

**Misra, Arvind K.** A topological view of $P$-spaces. **47** #5851

**Szymański, Andrzej** The existence of $P(\alpha)$-points of $N^*$ for $\aleph_0<\alpha<\mathfrak{c}$. **58** #7571

**Veksler, A. I.** $P'$-points, $P'$-sets, $P'$-spaces. A new class of order-continuous measures and functionals. (Russian) **49** #6198

$P'$-sets. (Russian) **58** #31000

Functional characteristics of $P'$-spaces. **56** #9504

Secondary classifications:

**Bernau, S. J.** Topologies on structure spaces of lattice groups. (**47** #4889)

**Frankiewicz, Ryszard** On the inhomogeneity of the set of $P(m)$-points of $\omega^*$. (**58** #12924)

**Hung, H. H.** (*with* Negrepontis, S.) Spaces homeomorphic to $(2^\alpha)_\alpha$. II. (**51** #6690)

**Negrepontis, S.** *See* **Hung, H. H.**, (**51** #6690)

**Nieminen, T.** On ultrapseudocompact and related spaces. (**58** #30964)

**Telgársky, Rastislav** A characterization of $P$-spaces. (**53** #3977)

**Yasui, Yoshikazu** On $\omega_\mu$-metrizable spaces. (**54** #1180)

### 54G15 Pathological spaces

**Fedorčuk, V. V.** Bicompacta without canonical correct sets. (Russian) **51** #6765

**Pol, Roman** Two examples of non-separable metrizable spaces. **54** #1186

**Ritter, Gerhard X.** A connected, locally connected, countable Hausdorff space. **52** #11869

Secondary classifications:

**Blasco Olcina, José Luis** (*with* López Pellicer, Manuel) Some properties of Tihonov's example of a regular space that is not completely regular. (Spanish. English summary) (**54** #11273)

**Collino, Alberto** Alcune proprietà omotopiche degli spazi dotati della $\aleph_0$-topologia. (English summary) (**45** #2680)

**López Pellicer, Manuel** *See* **Blasco Olcina, José Luis**, (**54** #11273)

**van Mill, Jan** A countable space no compactification of which is supercompact. (Russian summary) (**58** #2719)

**Ritter, Gerhard X.** A connected, locally connected, countable Urysohn space. (**55** #6357)

**Vought, Eldon J.** A countable connected Urysohn space with a dispersion point that is regular almost everywhere. (**48** #4998)

### 54G20 Counterexamples

**Boone, James R.** An example relating to Arhangel'skiĭ's class MOBI. **48** #7233

**Carpintero Organero, Pablo** Examples and counterexamples of general topology constructed with ordered sets. (Spanish) **57** #17607

**de Caux, Peter** A collectionwise normal weakly $\theta$-refinable Dowker space which is neither irreducible nor realcompact. **56** #6629

**van Douwen, Eric K.** A technique for constructing examples. **57** #4137

**Harley, Peter W., III** A countable nowhere first countable Hausdorff space. **50** #11200

**Lewis, I. W.** On covering properties of subspaces of R. H. Bing's example G. **55** #4112

**Martin, John R.** An example of a contractible $LC^\infty$ compactum which is not an absolute approximate retract. (Russian summary) **56** #16596

**Ostaszewski, A. J.** A perfectly normal countably compact scattered space which is not strongly zero-dimensional. **56** #13184

**Parsons, Lee** An example of a space which is countably compact whose square is countably paracompact but not countably compact. **56** #9505

**Pol, Elżbieta** *See* **Pol, Roman**, **52** #11870

**Pol, Roman** (*with* Pol, Elżbieta) An open-perfect mapping of a hereditarily disconnected space onto a connected space. **52** #11870

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A chain compact space which is not strongly scattered. **53** #6517

Compact $C$-spaces and $S$-spaces. **56** #16597

(*with* Woods, R. Grant) Products of sequentially compact spaces and the $V$-process. **56** #9506

**Rudin, Mary Ellen** A separable Dowker space. **54** #3669

**Solomon, R. C.** A scattered space that is not zero-dimensional. **56** #13183

**Wilczyński, Władysław** Topologies and classes of continuous real functions. (Russian summary) **55** #9048

**Woods, R. Grant** *See* **Rajagopalan, M.**, **56** #9506

**Zanolin, Fabio** Solution of a problem of Josef Novák about convergence groups. (Italian summary) **56** #9507

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**Bade, William G.** Two properties of the Sorgenfrey plane. (**50** #11195)

**Burke, Dennis K.** A note on R. H. Bing's Example $G$. (**51** #11426)

**van Douwen, Eric K.** A regular space on which every continuous real-valued function is constant. (**47** #1019)

Hausdorff gaps and a nice countably paracompact nonnormal space. (**56** #13158)

**Gruenhage, Gary** The Sorgenfrey line is not an elastic space. (**47** #5833)

**Ismail, Mohammad** On the $\pi$-weight of spaces. (Russian summary) (**56** #13139)

**Kato, Akio** A note on pseudocompact spaces and $k_R$-spaces. (**55** #6360)

**Nyikos, Peter J.** Prabir Roy's space $\Delta$ is not $N$-compact. (**48** #3007)

**Olson, Roy C.** A countably compact $k'$-space need not be countably **bi**-$k$. (**58** #12925)

**Popov, V. V.** Reducible spaces. (Russian. English summary) (**57** #1393)

**Reed, George M.** On chain conditions in Moore spaces. (**49** #9815)

**Rudin, Mary Ellen** A normal hereditarily separable non-Lindelöf space. (**46** #8173)

(*with* Zenor, Phillip) A perfectly normal nonmetrizable manifold. (**52** #15361)

**San Ou, Syōji** A note on $\Xi$-product. (**56** #1269)

**Simon, Petr** A note on Rudin's example of Dowker space. (**47** #9541)

A note on Rudin's example of Dowker space. (**50** #8444)

**Stephenson, R. M., Jr.** Near compactness and separability of symmetrizable spaces. (**56** #16575)

**Wage, Michael L.** Non-normal spaces. (**56** #9487)

**Zenor, Phillip** *See* **Rudin, Mary Ellen**, (**52** #15361)

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**Berney, E. S.** A chaotic space. **50** #11201

**Čoban, M. M.** Continuous images of complete spaces. (Russian) **51** #11459

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**Levy, Ronnie** Almost-$P$-spaces. **57** #4138

**Marty, Roger H.** $m$-adic spaces. **45** #2649

**Szymański, Andrzej** On the existence of $\omega$-points. **56** #16598

**Wicke, Howard H.** *See* **van Douwen, Eric K.**, **55** #6390

**Witt, Ernst** Homöomorphie einiger Tychonoffprodukte. **51** #4192

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**Babiker, Abdel Ghayoum A.** On almost discrete spaces. (**45** #5299)

**Carpintero Organero, Pablo** On topological spaces without proper homeomorphisms and ordered sets without proper similitudes. I. (Spanish) (**56** #6597a)

On topological spaces without proper homeomorphisms and ordered sets without proper similitudes. II. (Spanish) (**56** #6597b)

**Kunen, Kenneth** Luzin spaces. (**56** #8362)

**Wicke, Howard H.** (*with* Worrell, John M., Jr.) Scattered spaces of point-countable type. (**57** #1415)

**Worrell, John M., Jr.** *See* **Wicke, Howard H.**, (**57** #1415)

## 54Hxx Connections with other structures, applications

Secondary classifications:

**Artstein, Zvi** Continuous dependence on parameters: on the best possible results. (**52** #11155)

**(Swaminathan, Srinivasa)** *See* **Fixed point theory and its applications**, (**54** #11112)

**Fixed point theory and its applications** ★Fixed point theory and its applications. (**54** #11112)

### 54H05 Descriptive set theory (topological aspects of Borel, analytic, projective, etc. sets) [See also 02K30, 04A15, 26A21, 28A05.]

**Abels, Herbert** Parallelizability of proper actions, global $K$-slices and maximal compact subgroups. **51** #11460

**Braude, Eric John** Compact $\mathcal{G}$-souslin sets are $G_\delta$'s. **47** #9580

**Brown, Jack B.** On the Baire order of concentrated spaces and $L_1$ spaces. **55** #4113

**Christensen, Jens Peter Reus** A topological analogue of the Fubini theorem and some applications. **52** #6685

Necessary and sufficient conditons for the measurability of certain sets of closed subsets. **48** #12488

★Topology and Borel structure. **50** #1221

**Chudnovsky, David V.** Discrete topological spaces. (Russian) **45** #9279

**Davies, Roy O.** On a separation theorem of Rogers. **49** #3868

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**Dellacherie, Claude** Les théorèmes de Mazurkiewicz-Sierpinski et de Lusin. **53** #11590

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Ensembles analytiques. Théorèmes de séparation et applications. **55** #1331 (E **56** #1278)

Une remarque sur les espaces sousliniens de Bourbaki. **55** #9045a

Correction à "Ensembles analytiques. Théorèmes de séparation et applications" (Séminaire de Probabilités, IX (Seconde partie, Univ. Strasbourg, Strasbourg, années universitaires 1973/1974 et 1974/1975), pp. 336–372, Lecture Notes in Math., Vol. 465, Springer, Berlin, 1975). **56** #1278

Les dérivations en théorie descriptive des ensembles et le théorème de la borne. **56** #13185

**Freiwald, Ronald C.** Images of Borel sets and $k$-analytic sets. **49** #6199

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**Kechris, Alexander S.** (*with* Martin, Donald A.) A note on universal sets for classes of countable $G_\delta$'s. **54** #8593

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**Mokobodzki, Gabriel** Démonstration élémentaire d'un théorème de Novikov. **56** #1279

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**Nakamura, Michiko** On $K$-Souslin spaces. **46** #6283

**Ostaszewski, A. J.** On Lusin's separation principle in Hausdorff spaces. **49** #6201

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**Petrişor, Petru A.** Sur un type d'interpolation. **47** #2568

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**Pfeffer, Washek F.** On generalized Borel sets. **58** #7572

**Pol, Roman** A note on Borel subsets of dyadic spaces. (Russian summary) **53** #14453

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**Rice, Michael D.** Uniformities in the descriptive theory of sets. I. Basic operators. **58** #2757

**Rogers, C. A.** Lusin's second separation theorem. **51** #14008

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**Saint Andre, Richard** A classification of ultrafilters. **45** #4344

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**Šapirovskiĭ, B. È.** Discrete subspaces of topological spaces. Weight, tightness and Suslin number. (Russian) **45** #1100

**Sarbadhikari, H.** Some uniformization results. **58** #12954

**Stone, A. H.** Unions of locally compact spaces. **53** #9174

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**Stout, Lawrence Neff** Independence theories and generalized zero-one laws. **58** #24214

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**Telgársky, Rastislav** On some topological games. **57** #4141

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**Tumarkin, L. A.** A certain lemma, and sets of the first and second categories in the generalized sense. (Russian. French summary) **45** #9303

**Valdivia, Manuel** On a certain class of topological spaces. (Spanish) **58** #12955

**Willard, Stephen** Some examples in the theory of Borel sets. **45** #4347

**Wiltmann, Horst** Some results on analytic spaces and semi-analytic functions with regard to gambling theory. **56** #9508

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**Arsenin, V. Ja.** (*with* Kozlova, Z. I.) A survey of A. A. Ljapunov's works on descriptive set theory. (Russian) (**57** #9432)

**Braude, Eric John** Descriptive Baire and descriptive$\mathcal{Z}$-analytic sets. (**47** #41)

Perfect open and distinguishable multivalued maps. (**48** #12456)

$\mathcal{G}$-Souslin diagonals and a theorem of Lorch and Tong. (**52** #6672)

**Christensen, Jens Peter Reus** On some properties of Effros Borel structure on spaces of closed subsets. (**46** #7460)

Borel structures and a topological zero-one law. (**47** #2021)

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**Chudnovsky, David V.** $N$-compactness and measurability properties. (Russian) (**45** #4965)

**Čoban, M. M.** Modifications of topologies, and nonemptiness of classes. (Russia (**53** #14368)

Operations over sets. (Russian) (**54** #7266)

**Comfort, W. W.** (*with* Negrepontis, S.) On families of large oscillation. (**46** #4473)

**Daguenet-Teissier, Maryvonne** Exemples d'ultrafiltres analytiques non boréliens aya une base borélienne. (**55** #2584)

**Dellacherie, Claude** (*with* Meyer, Paul-André) Ensembles analytiques et temps d'arrê (**54** #14084)

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**Frič, Roman** On continuous characters of Borel sets. (**55** #10597)

**Frolík, Zdeněk** Analytic and Borelian sets in general spaces. (**46** #66)

**Hajnal, András** (*with* Juhász, István) A consequence of Martin's axiom. (**46** #4474)

**Himmelberg, C. J.** (*with* VanVleck, F. S.) Selection and implicit function theorems f multifunctions with Souslin graph. (Russian summary) (**46** #3735)

**Jayne, J. E.** Spaces of Baire functions. I. (French summary) (**51** #6714)

The space of class $\alpha$ Baire functions. (**50** #14647)

Generation of $\sigma$-algebras, Baire sets and descriptive Borel sets. (**58** #22445)

**Juhász, István** *See* **Hajnal, András**, (**46** #4474)

**Kaniewski, Janusz** A generalization of Kondô's uniformization theorem. (Russian summary) (**54** #2468)

A selection theorem for partitions of Borel sets into compact subsets. (Russia summary) (**58** #239)

**Kanoveĭ, V. G.** A proof of a theorem of Luzin. (Russian) (**58** #16308)

**Kechris, Alexander S.** On a notion of smallness for subsets of the Baire space. (**56** #8369)

**Kozlova, Z. I.** *See* **Arsenin, V. Ja.**, (**57** #9432)

**Kuratowski, Kazimierz** On partitions of complete spaces which do not admit analyt selectors and on some consequences of a theorem of Gödel. (**53** #5308)

**Larman, D. G.** On the selection of compact subsets of positive measure from analyt sets of positive measure. (**50** #7460)

**Leese, S. J.** Measurable selections and the uniformization of Souslin sets. (**58** #2244

**(Ljapunov, A. A.)** *See* **Arsenin, V. Ja.; et al.**, (**57** #9432)

**Lorch, Edgar R.** (*with* Tong, Hing) Compactness, metrizability, and Baire isomorphis (**49** #3852)

**Lutzer, David J.** Some constructions in abstract measure theory. (**53** #3237)

**Mauldin, R. Daniel** Baire functions, Borel sets, and ordinary function systems. (**51** #4153)

On rectangles and countably generated families. (**55** #13372)

**Meyer, Paul-André** *See* **Dellacherie, Claude**, (**54** #14084)

**Myers, Dale** Invariant uniformization. (**53** #10582)

**Negrepontis, S.** *See* **Comfort, W. W.**, (**46** #4473)

**Orkin, Michael** A Blackwell space which is not analytic. (Russian summary) (**47** #5202)

**Oxtoby, John C.** ★Measure and category. A survey of the analogies between topological and measure spaces. (**52** #14213)

★Maß und Kategorie. (**52** #14214)

**Pol, Roman** Note on decompositions of metrizable spaces. I. (**55** #6347)

**(Preiss, David)** *See* **Saint-Raymond, Jean**, (**57** #12811)

**Rice, Michael D.** Descriptive sets in uniform spaces. (**57** #13837)

**Saint-Pierre, Jean** Profil d'un multiapplication borélienne à valeurs convexes. (**52** #14226)

**Saint-Raymond, Jean** Caractérisation d'espaces polonais. D'après des travaux récents J. P. R. Christensen et D. Preiss. (**57** #12811)

Espaces à modèle séparable. (English summary) (**54** #13515)

**Sarbadhikari, H.** A projective Blackwell space which is not analytic. (Russian summar (**48** #4250)

**(Schürger, K.)** *See* **Oxtoby, John C.**, (**52** #14214)

**Stupina, I. D.** The force of certain $\delta s$-operations. (Russian) (**45** #73)

**Tall, Franklin D.** Stalking the Souslin tree—a topological guide. (**58** #16313)

**Tong, Hing** *See* **Lorch, Edgar R.**, (**49** #3852)

**VanVleck, F. S.** *See* **Himmelberg, C. J.**, (**46** #3735)

**Wagner, Klaus** Arithmetische und Bairesche Operatoren. (**58** #5141)

**Willmott, Richard C.** A form of Lusin's second separation theorem for $k$-analytic set (**54** #12527)

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**Ljapunov, A. A.** *See* **Arsenin, V. Ja.; et al.**, (**57** #9432)

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**Probabilités** *See* **Dellacherie, Claude**, (**55** #9045b)

## 54H10 Topological representations of algebraic systems [See also 22–XX.]

**Jayne, J. E.** Topological representations of measurable spaces. **51** #4193

**Kannan, V.** (*with* Rajagopalan, M.) On rigidity and groups of homeomorphisms. **50** #8479

**Park, Young Lim** The minimal projective extension of the structure space of a rin **46** #2656

**Podewski, Klaus-Peter** Topologisierung algebraischer Strukturen. **57** #4142

**Rajagopalan, M.** *See* **Kannan, V.**, **50** #8479

**Šedivá-Trnková, Věra** $X^m$ is homeomorphic to $X^n$ iff $m \sim n$ where $\sim$ is a congruence o natural numbers. **49** #3869 (EA 51)

Secondary classifications:

**Bulman-Fleming, Sydney** On equationally compact semilattices. (**46** #7118)

**Fay, Temple H.** An axiomatic approach to categories of topological algebras. (**58** #833)

**Flachsmeyer, Jürgen** Dedekind-MacNeille extensions of Boolean algebras and of vector lattices of continuous functions and their structure spaces. (**58** #10646)

**Gierz, Gerhard** (*with* Keimel, Klaus) Topologische Darstellung von Verbänden. (**55** #2694)

**Grimeisen, Gerhard** Extensions of topological partial algebras to topological algebras. (**50** #9750)

**Hofmann, Karl Heinrich** (*with* Keimel, Klaus) ★A general character theory for partially ordered sets and lattices. (**49** #4885)

**Keimel, Klaus** *See* **Hofmann, Karl Heinrich**, (**49** #4885) *and* **Gierz, Gerhard**, (**55** #2694)

**Koubek, Václav** Each concrete category has a representation by $T_2$ paracompact topological spaces. (**50** #7283)

**Kuiper, Nicolaas H.** (*with* Robbin, J. W.) Topological classification of linear endomorphisms. (**47** #8567)

**Metzler, Richard C.** Representation of partially ordered linear algebras. (**50** #6969)

**Reichel, Hans-Christian** (*with* Ruppert, Wolfgang) Über Distanzfunktionen mit Werten in angeordneten Halbgruppen. (English summary) (**55** #12595)

**Robbin, J. W.** *See* **Kuiper, Nicolaas H.**, (**47** #8567)

**Ruppert, Wolfgang** *See* **Reichel, Hans-Christian**, (**55** #12595)

**Šedivá-Trnková, Věra** Products of topological spaces represent any semigroup. (**51** #3343)

**Stralka, Albert R.** The lattice of ideals of a compact semilattice. (**46** #7439)

### 54H15 Transformation groups and semigroups [See also 20Mxx, 22–XX, 57Exx.]

**Abe, Kōjun** Remarks on dimensions of compact transformation groups. **46** #871

**Abels, Herbert** Enden von Räumen mit eigentlichen Transformationsgruppen. **47** #5852

Distal affine transformation groups. **57** #10687

**Aleksandrov, A. D.** A characterization of Euclidean motions. (Russian) **49** #3870

**d'Alessandro, Paolo** (*with* Isidori, Alberto; Ruberti, Antonio) Equivalence transformations in linear dynamical systems. **47** #9581

**Al-Kutaibi, S. H.** (*with* Rhodes, F.) Lifting recursion properties through group homomorphisms. **53** #4018

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### 55A10 Covering spaces, branched coverings

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**Hartley, Richard** (*with* Murasugi, Kunio) Covering linkage invariants. (**56** #16628)

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**Kinoshita, Shin'ichi** On elementary ideals of projective planes in the 4-sphere and oriented $\Theta$-curves in the 3-sphere. (**51** #14062)

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**Kuo, Tzee-Char** (*with* Lu, Yung Chen) On analytic function germs of two complex variables. (**57** #704)

**Lambert, Howard** Links which are unknottable by maps. (**54** #8636)

**Langmaack, Hans** Verbandstheoretische Einbettung von Klassen unwesentlich verschiedener Ableitungen in die Zopfgruppe. (English summary) (**47** #8394)

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**Lickorish, W. B. Raymond** Surgery on knots. (**58** #7632)

**Lu, Yung Chen** *See* **Kuo, Tzee-Char**, (**57** #704)

**Magill, Kenneth D., Jr.** A survey of semigroups of continuous selfmaps. (**52** #14140 (E **56** #3168) )

**Magnus, Wilhelm** Braids and Riemann surfaces. (**45** #3696)

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**Takahashi, Moto-o** Two knots with the same 2-fold branched covering space. (**57** #1469)

**Viro, O. Ja.** Nonprojecting isotopies and knots with homeomorphic coverings. (Russian. English summary) (**56** #9539)

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**Weber, Martin** *See* **Leibscher, Ulrich**, (**58** #9951)

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**Harrold, O. G., Jr.** A class of wild closed curves that span orientable surfaces. **48** #1212

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**Keldyš, L. V.** Bogen im $E^3$ mit einer nulldimensionalen Menge von Wildpunkten. **49** #11498

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(*with* Hemion, Geoffrey) A local factorization theorem for arcs with finite penetration index. **53** #4038

**Rosen, Harvey** Piercing points on a special arc. **50** #8498

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**Daverman, Robert J.** Wild disks in $E^n$ that can be squeezed only to tame arcs. (**47** #2608)

**McPherson, James M.** Wild arcs in three-space. I. Families of Fox-Artin arcs. (**49** #8020a)

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**Pixley, Carl P.** On crumpled cubes in $S^3$ which are the finite union of tame 3-cells. (**57** #7608)

**Shilepsky, Arnold C.** Homogeneity and extension properties of embeddings of $S^1$ in $E^3$. (**49** #6245)

### 55A35 Dehn's Lemma, sphere theorem, loop theorem, asphericity

**Cannon, James W.** ULC properties in neighbourhoods of embedded surfaces and curves in $E^3$. **47** #2589

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**Dyer, Eldon** (*with* Vasquez, A. T.) The sphericity of higher dimensional knots. **48** #5051

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**Evans, Benny D.** On extendings Dehn's lemma. **52** #9211

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**Vasquez, A. T.** *See* **Dyer, Eldon**, **48** #5051

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**Loveland, L. D.** Metric spaces with connected midsets. (**57** #17601)

**Swarup, G. Ananda** On embedded spheres in 3-manifolds. II. (**58** #24271)

**Wright, David G.** Sticky arcs in $E^n$ $(n > 4)$. (**58** #24274)

### 55A40 Characterizations of $E^3$ and $S^3$ (Poincaré conjecture)

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Poincaré's conjecture and the homeotopy group of a closed, orientable 2-manifold. **49** #7999

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**Yokoyama, Kazuo** On links with property $P^*$. **57** #13913

Secondary classifications:

**Fox, Ralph Hartzler** A note on branched cyclic covering of spheres. (**48** #9694)

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**Ikeda, Hiroshi** Acyclic fake surfaces. (**48** #5078)

**Papakyriakopoulos, C. D.** Planar regular coverings of orientable closed surfaces. (**52** #9232)

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### 55A99 None of the above, but in this section

**Weaver, Norris** Dehn's construction and the Poincaré conjecture. **58** #7602

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**Gilman, Jane** A matrix representation for automorphisms of compact Riemann surfaces. (**58** #17077)

**Oleksīv, Ī. Ja.** (*with* Pesin, I. N.) Three problems on minimal isotopies and on the approximation of curves and surfaces by homeomorphisms. (Russian) (**56** #15887)

**Pesin, I. N.** *See* **Oleksīv, Ī. Ja.**, (**56** #15887)

**Suzuki, Shin'ichi** On a complexity of a surface in 3-sphere. (**49** #11515)

## 55Bxx Homology and cohomology theories

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**Michaelides, George J.** (*with* Bello, Ignacio) A countable and connected Hausdorff space whose first Čech cohomology group is isomorphic to Z. (Spanish) **51** #4216

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**Petkova, Stanislava V.** An example of a polyhedron whose cohomology is not isomorphic to the inverse limit of the cohomologies of its finite subpolyhedra. (Russian. English summary) **54** #1200
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**McMillan, D. R., Jr.** (*with* Shrikhande, N.) On the simple connectivity of a quotient space. (Serbo-Croatian summary) (**58** #18415)

**Morita, Kiiti** The Hurewicz isomorphism theorem on homotopy and homology pro-groups. (**51** #9053)
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**Nowiński, Krzysztof** Closed retractions of Euclidean spaces. (**51** #11411)

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## 55B15 $K$-theory [For algebraic $K$-theory, see 18F25.]

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**Araki, Shôrô** (*with* Yosimura, Zen-ichi) On a certain type of differential Hopf algebras. **51** #1802
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**Fujii, Michikazu** (*with* Yasui, Teruko) $K_0$-groups of the stunted real projective spaces. **48** #5053
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**Fujino, Tsutomu** (*with* Ishikawa, Nobuhiro; Kamata, Masayoshi) On the complex $K$-group of certain manifold. **49** #6219

**Harris, A. S.** *See* **Adams, John Frank; et al., 45** #2694

**Held, René P.** (*with* Suter, Ueli) On torsion in unitary $K$-theory of compact Lie groups. (Italian summary) **51** #4217

**Hodgkin, Luke** The $K$-theory of some wellknown spaces. I. $QS^0$. **48** #9701

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**Kaminker, Jerome** (*with* Schochet, Claude) $K$-theory and Steenrod homology: applications to the Brown-Douglas-Fillmore theory of operator algebras. **55** #4138

**Karoubi, Max** ★$K$-théorie. **50** #11218
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**Kobayashi, Teiichi** *See* **Fujii, Kensô; et al., 58** #24241

**Kučment, P. A.** (*with* Pankov, A. A.) Classifying spaces for equivariant $K$-theory. (Russian) **51** #4218 (E **54** #6124)
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**Kudo, Yoshimitsu** Gysin sequences in *K*-theories. **48** #7259
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**Rector, David L.** *K*-theory of a space with coefficients in a (discrete) ring. **45** #1154
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**Adams, John Frank** Maps between classifying spaces. (**58** #7628)
**Araki, Shôrô** ★Typical formal groups in complex cobordism and *K*-theory. (**51** #11549)
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**Conde, Antonio** On an integrality theorem of Atiyah and Hirzebruch. (**48** #5092)
**Dayton, Barry H.** Homotopy and algebraic *K*-theory. (**49** #3920)
**Douglas, Ronald G.** The relation of Ext to *K*-theory. (**58** #30291)
**Fujii, Kazuyuki** Note on a paper of J. L. Taylor. (**58** #13121)
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**Jouanolou, Jean-Pierre** Comparaison des *K*-théories algébrique et topologique de quelques variétés algébriques. (**45** #1930)
**Kaminker, Jerome** (*with* Schochet, Claude) Steenrod homology and operator algebras. (**56** #9287)
**Klasa, Stanislas** Sur la *K*-théorie algébrique et périodicité. (**53** #5702)
**Minami, Haruo** Equivariant *K*-ring of *G*-manifold (U($n$), $\mathrm{ad}_G$). I. (**48** #1246)
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**Simson, Daniel** (*with* Tyc, Andrzej) Connected sequences of stable derived functors and their applications. **51** #14030

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**Švedov, I. A.** *See* **Kuz′minov, V. I.**, **46** #884

**Tyc, Andrzej** *See* **Simson, Daniel**, **51** #14030

**Würgler, Urs** Über Kohomologietheorien mit formaler Gruppe der Charakteristik $p$. **49** #3902

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**Bieri, Robert** (*with* Eckmann, Beno) Cobordism for Poincaré duality groups. (**52** #14007)

**Brown, Lawrence G.** (*with* Douglas, Ronald G.; Fillmore, P. A.) Extensions of $C^*$-algebras and $K$-homology. (**56** #16399)

**Buoncristiano, Sandro** (*with* Rourke, C. P.; Sanderson, Brian J.) ★A geometric approach to homology theory. (**54** #1234 (EA **54**) )

**Deleanu, Aristide** (*with* Hilton, Peter John) Remark on Čech extensions of cohomology functors. (**49** #11499)

**Douglas, Ronald G.** *See* **Brown, Lawrence G.; et al.**, (**56** #16399)

**Eckmann, Beno** *See* **Bieri, Robert**, (**52** #14007)

**Farmer, Frank D.** The homology of reflexive relations. (**53** #5349)

**Fillmore, P. A.** *See* **Brown, Lawrence G.; et al.**, (**56** #16399)

**Garavaglia, Steven** Homology with equationally compact coefficients. (**58** #12999)

**Heydemann, M. C.** (*with* Vigué-Poirrier, Micheline) Étude de certaines algèbres différentielles. (**50** #446)
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**Hilton, Peter John** *See* **Deleanu, Aristide**, (**49** #11499)

**Inasaridze, H. N.** Exact homology. (Russian. Georgian and French summaries) (**50** #8503 (EA **51**) )

**Johnson, David Copeland** (*with* Wilson, W. Stephen) The projective dimension of the complex bordism of Eilenberg-MacLane spaces. (**57** #7584)

**Kaminker, Jerome** (*with* Schochet, Claude) Ext($X$) from a homological point of view. (**56** #6429)

**MacDonald, John L.** Natural factorizations and the Kan extension of cohomology theories. (**55** #451)

**Rourke, C. P.** *See* **Buoncristiano, Sandro; et al.**, (**54** #1234 (EA **54**) )

**Sanderson, Brian J.** *See* **Buoncristiano, Sandro; et al.**, (**54** #1234 (EA **54**) )

**Schochet, Claude** *See* **Kaminker, Jerome**, (**56** #6429)

**Vigué-Poirrier, Micheline** *See* **Heydemann, M. C.**, (**50** #446) *and* **Heydemann, M. C.**, (**50** #447)

**Vogel, Pierre** Cobordisme d'immersions. (**51** #9082)

**Wilson, W. Stephen** *See* **Johnson, David Copeland**, (**57** #7584)

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**Bacon, Philip** Axioms for the Čech cohomology of paracompacta. **51** #1803

**Bos, Werner** Einführung in die Homologietheorie. **50** #3213

**Bunjatov, M. R.** The Kolmogorov homology of a Boolean algebra with closure. (Russian. English and Azerbaijani summaries) **58** #24244

**Deleanu, Aristide** Remark on the Brown-Adams representability theorem. **47** #5863

**Deo, Satya** On the tautness property of Alexander-Spanier cohomology. **52** #1670

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**Kojima, Jun** *See* **Kinoshita, Moto-o,** (**58** #7740)
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**O'Neill, Duane** On hom dim $MU_*(X \times Y)$. **53** #11601
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**Wakae, Masami** On the homology of the $n$-special reduced product space of a Euclidean space. II. **55** #11240

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**Larsen, Mogens Esrom** On the topology of complex projective manifolds. (**47** #7058)

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**Brown, Lawrence G.** Characterizing Ext($X$). **57** #13922
**Degtjar′, P. V.** Cohomology of semifields. (Russian) **58** #31059
**Fáry, István** Absolute subcomplexes. **57** #7576
**Gottlieb, Daniel Henry** The evaluation map and homology. **49** #8005
**Kane, Richard** On spherical homology classes. **57** #17626
**McCord, M. C.** Non-standard analysis and homology. **45** #9316
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**Wilson, Robin J.** Graph theory and algebraic topology. **50** #3214

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**Anderson, Joel** A $C^*$-algebra $\mathscr{C}$ for which Ext($\mathscr{C}$) is not a group. (**58** #12399)
**Giraud, Jean** ★Cohomologie non abélienne. (**49** #8992)
**Helemskiĭ, A. Ja.** A certain method of computing and estimating the global homology dimension of Banach algebras. (Russian) (**45** #9135)
**Keesling, James E.** Algebraic invariants in shape theory. (**56** #15732)

## 55Cxx Classical topics [For the topology of Euclidean spaces and manifolds, see 57A05, 57A10, 57A15.]

Secondary classifications:

**Aleksandrov, P. S.** (*with* Hopf, Heinz) ★Topologie. I. (**49** #9826)
**Hopf, Heinz** *See* **Aleksandrov, P. S.,** (**49** #9826)

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**Gordon, Gerald Leonard** A Poincaré duality type theorem for polyhedra. (French summary) **49** #3904
**Maunder, C. R. F.** General position theorems for homology manifolds. **45** #6007
**Postnikov, M. M.** Axiomatic homology theory and the Alexander duality theorem. **52** #15436
**Skljarenko, E. G.** On the theory of generalized manifolds. (Russian) **45** #1170

Secondary classifications:

**Kaup, Ludger** The Jordan-Brouwer separation theorem for locally analytic spaces. (**47** #5294)
**Kušel′man, M. S.** Construction of homotopy 4-spheres that are branched over two-dimensional knots. (Russian. Azerbaijani summary) (**45** #4420)
**Laitadze, G. L.** The Steenrod duality theorem for homology sequences. (Russian. Georgian and English summaries) (**49** #9836)
**Malgoire, Jean** *See* **Voisin, Christine,** (**58** #24270)
**Mdzinarišvili, L. D.** The Kolmogorov duality law. (Russian) (**55** #9070)
**Voisin, Christine** (*with* Malgoire, Jean) ★Cartes cellulaires. (**58** #24270)
**Wirthmüller, Klaus** Equivariant homology and duality. (**49** #8004)

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**Allday, Christopher** On the rank of a space. **45** #1158
**Bondar, A. V.** (*with* Zelins′kiĭ, Ju. B.) A test for monotonicity. (Russian) **57** #7577
**Borsuk, Karol** (*with* Holsztyński, Włodzimierz) Hopf classification theorem in the shap theory. (Russian summary) **46** #885
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**Kodama, Yukihiro** A remark on the dimensional fullvaluedness. **55** #11241
**Kudo, Yoshimitsu** Formulas of geometrical dimension. **49** #3905
**Ljuksemburg, L. A.** Cohomological dimension. (Russian) **52** #6701
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**Skordev, Genčo S.** Mappings of a finite dimensional sphere in Euclidean spaces. **51** #4222
**Ucci, Jack** A note on fixed point free involutions and equivariant maps. **45** #7706
**Zelins′kiĭ, Ju. B.** *See* **Bondar, A. V., 57** #7577

Secondary classifications:

**Stralka, Albert R.** The Green equivalences and dimension in compact monoids. I (**52** #8322)
**Walsh, John J.** Infinite dimensional compacta containing no $n$-dimensional ($n >$ subsets. (**56** #16638)

### 55C15 Absolute neighborhood retracts [See also 54C55.]

**Cauty, Robert** Un contre-exemple concernant les rétractions dans les variétés no paracompactes. **49** #3906
Classifiant de Milnor et rétractes absolus de voisinage. **57** #10701
**Chapman, T. A.** Simple homotopy theory for ANR's. **58** #18414
**Dydak, Jerzy** A simple proof that pointed FANR-spaces are regular fundamenta retracts of ANR's. (Russian summary) **56** #1293
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**Shrikhande, N.** *See* **McMillan, D. R., Jr., 58** #18415
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**Taylor, Joseph L.** Homotopy invariants for Banach algebras. (**55** #8830)

### 55C20 Fixed points and coincidences [See also 54H25.]

**Agoston, Max K.** An obstruction to finding a fixed point free map on a manifol **49** #1511
**Alexander, James C.** (*with* Yorke, James A.) The homotopy continuation method numerically implementable topological procedures. **57** #17627
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**Brown, Morton** (*with* Neumann, Walter D.) Proof of the Poincaré-Birkhoff fixed point theorem. **56** #6646

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**Vick, James W.** *See* **Alexander, John P.; et al.**, (**49** #9857)
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**Wu, Ching-Mu** Bordism and maps of odd prime period. (**46** #9960)

### 55C99 None of the above, but in this section

**Braemer, Jean-Marc** Cohomologies de certaines formes sphériques. **49** #6224
**Efremovič, V. A.** (*with* Rudjak, Ju. B.) On the concept of the Euler characteristic. (Russian) **56** #16615
**Rudjak, Ju. B.** *See* **Efremovič, V. A.**, **56** #16615
**Sanderson, D. E.** An elementary romp through some advanced Euclidean topology. **56** #13207
**Zelins′kiĭ, Ju. B.** Monotonicity criteria. (Russian) **57** #13929

Secondary classifications:

**Hamburg, Ileana** Particular fields of vectors in the plane. (Romanian. French summary) (**48** #11530)
**Reddy, William L.** Special cohomology and branched coverings. (**49** #3886)
**Sperner, Emanuel, Jr.** Kombinatorik bewerteter Komplexe. (**48** #10825)

## 55Dxx Homotopy theory [For simple homotopy type, see 57C10.]

**Arkowitz, Martin** ★Localization and $H$-spaces. **53** #4048
**Bauer, Friedrich-Wilhelm** ★Homotopietheorie. **48** #7264
**tom Dieck, Tammo** (*with* Kamps, Klaus Heiner; Puppe, Dieter) ★Homotopietheorie. **53** #11603
**Gabriel, Peter** (*with* Zisman, Michel) ★Категории частных и теория гомотопий. (Russian) [Categories of fractions and homotopy theory] **50** #5785
**Kamps, Klaus Heiner** *See* **tom Dieck, Tammo; et al.**, **53** #11603
**(Postnikov, M. M.)** *See* **Gabriel, Peter; et al.**, **50** #5785
**Puppe, Dieter** *See* **tom Dieck, Tammo; et al.**, **53** #11603
**Zisman, Michel** *See* **Gabriel, Peter**, **50** #5785

Secondary classifications:

**Bogatyĭ, Semen A.** The theorem of Vietoris in the homotopy category, and a certain problem of Borsuk. (Russian) (**51** #6715)

### 55D05 Homotopy extension properties, cofibrations

**Adams, John Frank** Idempotent functors in homotopy theory. **51** #11485
**Alder, Michael D.** Locally trivial homotopy functors and their domain of representation. **54** #1207
**Bolker, Ethan D.** The spinor spanner. **49** #6232
**Booth, Peter I.** Fibrations and cofibred pairs. **51** #6787
(*with* Heath, Philip R.; Piccinini, Renzo A.) Section and base-point functors. **52** #6704
**Bousfield, A. K.** Homological localizations of spaces, groups, and $\pi$-modules. **51** #6788
The localization of spaces with respect to homology. **52** #1676
**Calder, Allan** Uniformly trivial maps into spheres. **50** #11222
**Caruncho Castro, José R.** (*with* Touzón Pérez, Constantino) Homotopy and injectivity. (Spanish) **54** #3688
**Cauty, Robert** Une remarque sur les cofibrations. **58** #24253
**Cohen, Joel M.** The homotopy groups of inverse limits. **48** #7265
**Contreras, Pedro** Cofibrations. (Spanish) **53** #14480
**Coram, Donald** (*with* Duvall, Paul F.) Approximate fibrations. **56** #1296
**Deleanu, Aristide** (*with* Frei, Armin; Hilton, Peter John) Generalized Adams completion. **50** #8510
**Dold, Albrecht** Local extension properties in topology. **48** #12511
**Duvall, Paul F.** *See* **Coram, Donald**, **56** #1296
**Eggar, M. H.** Non-homotopic maps between CW-complexes. **52** #11898
**Frei, Armin** *See* **Deleanu, Aristide; et al.**, **50** #8510
**Grossman, Jerrold W.** Homotopy classes of maps between pro-spaces. **51** #4226
A homotopy theory of pro-spaces. **50** #8511
**Hastings, Harold M.** Fibrations of compactly generated spaces. **51** #4227
**Heath, Philip R.** Note on Dold-Weinzweig fibrations and duality. **52** #1677
Change of base point and fibrations. **51** #6789
Homotopy equivalence of a cofibre fibre composite. **56** #16616
*See also* **Booth, Peter I.; et al.**, **52** #6704
**Hilton, Peter John** (*with* Roitberg, Joseph) On the Zeeman comparison theorem for th homology of quasi-nilpotent fibrations. **55** #4153
*See also* **Deleanu, Aristide; et al.**, **50** #8510
**Johnsonbaugh, Richard** Homotopy theory in terms of covering spaces. (Russian summary) **54** #13903
**Kamps, Klaus Heiner** On exact sequences in homotopy theory. **50** #5786
Fundamentalgruppoid und Homotopien. **49** #3908
**Kieboom, R. W.** On the very weak and rather weak homotopy-extension property **55** #11244
**Lillig, Joachim** A union theorem for cofibrations. **48** #12512
**Lintz, R. G.** Urysohn's lemma for $g$-functions and homotopy extension theorem. **46** #9967
**Marcum, Howard J.** ★Parameter constructions in homotopy theory. **58** #18419
Parameter constructions in homotopy theory. **57** #4154
**Mardešić, Sibe** The Hurewicz and Whitehead theorems in shape theory. **51** #6790
**Mather, Michael** Hurewicz theorems for pairs and squares. **50** #8512
A generalisation of Ganea's theorem on the mapping cone of the inclusion of fibre. **52** #9215
**Mdzinarišvili, L. D.** The satellites of the generalized projective limit functor, and thei homotopic application. (Russian) **49** #3909
**Mertens, Jens-Uwe** Exakte Paare und Kettenkomplexe. **48** #3038
**Morita, Kiiti** The Hopf extension theorem for topological spaces. **52** #1678
**Panzu, Mavinga** Limites faibles en homotopie. **53** #1579
**Piccinini, Renzo A.** *See* **Booth, Peter I.; et al.**, **52** #6704
**Pop, Ioan** Fibrations in the homotopical sense. (Romanian summary) **47** #2592
On some homotopy lifting and extension properties for sequences of continuou maps. (Romanian summary) **54** #8619
**Porter, Timothy** Stability results for topological spaces. **52** #6705
**Puppe, Volker** A remark on "homotopy fibrations". **51** #1808
**Quinn, Frank** Extensions of maps as fibrations and cofibrations. **52** #6706
**Roitberg, Joseph** *See* **Hilton, Peter John**, **55** #4153
**Roux, André** Catégories, complexes et homotopie. **52** #6707
**Ščepin, E. V.** A certain problem of L. A. Tumarkin. (Russian) **50** #11223
**Spencer, Christopher B.** A 2-category of quasi-topological spaces. **49** #9840
**Sullivan, Dennis** Cartan-de Rham homotopy theory. **53** #6543
**Touzón Pérez, Constantino** *See* **Caruncho Castro, José R.**, **54** #3688
**Troué, Jacques** On a theorem on the change of base point in a path connected space **54** #6126
**Tulley McAuley, Patricia** A note on paired fibrations. **54** #11315
**Walker, Marshall** Homotopy pull-backs and applications to duality. **55** #11245
**Wirth, James F.** The mapping cylinder axiom for WCHP fibrations. **51** #14034

Secondary classifications:

**Becker, James C.** (*with* Casson, Andrew; Gottlieb, Daniel Henry) The Lefschetz number and fiber preserving maps. (**53** #14474)
**Casson, Andrew** *See* **Becker, James C.; et al.**, (**53** #14474)
**Dwyer, William G.** Homological localization of $\pi$-modules. (**58** #22333)
**Friedlander, Eric M.** The étale homotopy theory of a geometric fibration. (**50** #458 (EA **51**) )
**Gottlieb, Daniel Henry** *See* **Becker, James C.; et al.**, (**53** #14474)
**Hoff, Georges** L'homotopie des catégories. (**54** #12862)
**Hoo, Cheong S.** Lifting Gottlieb sets. (**55** #11254)
**Hoshina, Takao** *See* **Morita, Kiiti**, (**51** #1718)
**Husch, L. S.** Approximating approximate fibrations by fibrations. (**58** #18472)
**Morita, Kiiti** On generalizations of Borsuk's homotopy extension theorem. (**51** #11416
(*with* Hoshina, Takao) $C$-embedding and the homotopy extension property (**51** #1718)
**Nomura, Yasutoshi** A topological proof of a ten-term exact sequence of Gut. (**58** #925
**Sennott, Linnea I.** On extending continuous functions into a metrizable AE. (**58** #2700
**Spencer, Christopher B.** An abstract setting for homotopy pushouts and pullbacks (**58** #5842)
**Starbird, Michael** The Borsuk homotopy extension theorem without the binormalit condition. (**51** #9014)
**Vainšteĭn, A. G.** Equimorphisms of geodesic spaces, and uniform homotopy. (Russian English summary) (**54** #6052)

### 55D10 Homotopy equivalences

**Abeasis, Silvana** (*with* Del Fra, Alberto) Osservazioni, sul tipo omotopico dei $G$-CW-complessi e dei $G$-ANR. (English summary) **58** #24254
**Allaud, Guy** De-looping homotopy equivalences. **46** #8217
**Becker, James C.** (*with* Schultz, Reinhard) Equivariant function spaces and stable homotopy theory. II. **54** #3689
**Čerin, Zvonko** Homotopy at infinity of proper maps. (Serbo-Croatian summary) **58** #24255

**Del Fra, Alberto** *See* **Abeasis, Silvana, 58** #24254

**tom Dieck, Tammo** Partitions of unity in homotopy theory. **45** #2702

**Doĭčinov, Doĭčin** The uniform shape of metric spaces. (Russian) **53** #9202

**Edwards, David A.** (*with* Hastings, Harold M.) Whitehead theorems in proper homotopy theory. **52** #11899

(*with* Hastings, Harold M.) Every weak proper homotopy equivalence is weakly properly homotopic to a proper homotopy equivalence. **53** #14481

**Eggar, M. H.** On solving homotopy equivalences. **45** #5995

The piecing comparison theorem. **48** #7267

**Frank, David** (*with* Kahn, Donald W.) Finite complexes with infinitely-generated groups of self-equivalences. **57** #17629

**Friedlander, Eric M.** Exceptional isogenies and the classifying spaces of simple Lie groups. **52** #11900

**Fuchs, Martin** Homotopy equivalences in equivariant topology. **54** #1208

**Geist, Robert Miller** Semicharacteristic detection of obstructions to rational homotopy equivalence. **58** #18420

**Handel, David** Fibre bundle homotopy epimorphisms. **51** #6791

Epimorphism plus monomorphism implies equivalence in the homotopy category. **53** #4049

**Hastings, Harold M.** *See* **Edwards, David A., 52** #11899 *and* **Edwards, David A., 53** #14481

**Heath, Philip R.** Groupoid operations and fibre homotopy equivalence. II. Naturality. **54** #13904

(*with* Kamps, Klaus Heiner) Induced homotopy in structured categories. (Italian summary) **54** #13905

**Held, René P.** (*with* Sjerve, Denis K.) On the Spanier conjecture. **46** #4527

**Hilton, Peter John** Non-cancellation phenomena in topology. **51** #6792

(*with* Roitberg, Joseph) Generalized *C*-theory and torsion phenomena in nilpotent spaces. **55** #13412a

(*with* Roitberg, Joseph) On the finitude of counterimages in maps of function-spaces. Correction to: "Generalized *C*-theory and torsion phenomena in nilpotent spaces" (Houston J. Math. 2 (1976), no. 4, 525–559). **55** #13412b

*See also* **de Lyra, Carlos B., 54** #8620

**Hoo, Cheong S.** (*with* Hösli, Hansueli) On the division by the circle. **58** #18421

**Hösli, Hansueli** *See* **Hoo, Cheong S., 58** #18421

**Kahn, Donald W.** A note on *H*-equivalences. **47** #4250

Realization problems for the group of homotopy classes of self-equivalences. **53** #6544

*See also* **Frank, David, 57** #17629

**Kamps, Klaus Heiner** *See* **Heath, Philip R., 54** #13905

**Kan, Daniel M.** A Whitehead theorem. **53** #14482

(*with* Miller, Edward Y.) Homotopy types and Sullivan's algebras of 0-forms. **55** #13413

**Kozma, Ilan** Some relations between semigroups of polyhedra. **47** #4251

**Lieberman, Gerald** (*with* Smallen, David L.) Localization and self-equivalences. **49** #1514

**de Lyra, Carlos B.** SHM-maps of CW-groups. **54** #8620

**Miller, Edward Y.** *See* **Kan, Daniel M., 55** #13413

**Mislin, Guido** Finitely dominated nilpotent spaces. **54** #3690

**Morita, Kiiti** Another form of the Whitehead theorem in shape theory. **52** #9216

**Oka, Shichirô** Groups of self-equivalences of certain complexes. **47** #7730

(*with* Sawashita, Norichika; Sugawara, Masahiro) On the group of self-equivalences of a mapping cone. **49** #11503

**Parks, James M.** On a particular completion involving the space of self-homotopy equivalences. **54** #1209

**Puppe, Dieter** Some well known weak homotopy equivalences are genuine homotopy equivalences. **46** #2665

**Roitberg, Joseph** Nilpotent groups, homotopy types and rational Lie algebras. **51** #1809

*See also* **Hilton, Peter John, 55** #13412a *and* **Hilton, Peter John, 55** #13412b

**Rutter, John W.** The group of self-homotopy equivalences of principal three sphere bundles over the seven sphere. **58** #7614

**Sawashita, Norichika** On the group of self-equivalences of the product of spheres. **51** #14035

On *H*-equivalences of SU(3), U(3) and Sp(2). **58** #2797

*See also* **Oka, Shichirô; et al., 49** #11503

**Schellenberg, Bjørn** On the self-equivalences of a space with non-cyclic fundamental group. **48** #3039

The group of homotopy self-equivalences of some compact CW-complexes. **48** #5062

**Schultz, Reinhard** *See* **Becker, James C., 54** #3689

**Sjerve, Denis K.** *See* **Held, René P., 46** #4527

**Smallen, David L.** The group of self-equivalences of certain complexes. **53** #9203

*See also* **Lieberman, Gerald, 49** #1514

**Sugawara, Masahiro** *See* **Oka, Shichirô; et al., 49** #11503

**Swarup, G. Ananda** On a theorem of C. B. Thomas. **49** #6225

**Toomer, Graham Hilton** Homology equivalences and a technique of Ganea. **54** #11316

**Tsukiyama, Kouzou** Note on self-homotopy-equivalences of the twisted principal fibrations. **58** #7615

**Vogt, Rainer M.** A note on homotopy equivalences. **45** #2709

**West, Robert W.** Exact sequences of spaces. II. **46** #8218

Secondary classifications:

**Borsuk, Karol** ★Theory of shape. (**45** #2679)

Some quantitative properties of shapes. (**55** #1294)

**Collino, Alberto** Alcune proprietà omotopiche degli spazi dotati della $\aleph_0$-topologia. (English summary) (**45** #2680)

**Conner, Pierre** (*with* Raymond, Frank) Realizing finite groups of homeomorphisms from homotopy classes of self-homotopy-equivalences. (**51** #4287)

**Cooke, George E.** Replacing homotopy actions by topological actions. (**57** #1529)

**Datta, C.** Topological vector fields. (**58** #31130)

**Dydak, Jerzy** (*with* Nowak, Sławomir; Strok, M.) On the union of two FANR-sets. (Russian summary) (**54** #1157)

An algebraic condition characterizing FANR-spaces. (Russian summary) (**54** #1158)

**Edwards, David A.** (*with* Geoghegan, Ross) The Wall obstruction in shape and pro-homotopy, with applications. (**51** #11526)

**Farrell, F. Thomas** (*with* Taylor, Laurence R.; Wagoner, John B.) The Whitehead theorem in the proper category. (**48** #12545)

**Fox, Ralph Hartzler** On shape. (**45** #5973 (E **46** #6282) )

**Fuks, D. B.** Quillenization and bordism. (Russian) (**49** #8043)

**Geoghegan, Ross** *See* **Edwards, David A.,** (**51** #11526)

**Hendriks, Harrie** Obstruction theory in 3-dimensional topology: classification theorems. (**55** #11256)

**Kárteszi, Ferenc** Configurazioni inscritte in un ovale. (English summary) (**57** #2946)

**Keesling, James E.** Decompositions of the Stone-Čech compactification which are shape equivalences. (**58** #24175)

**Mardešić, Sibe** Retracts in shape theory. (Serbo-Croatian summary) (**45** #5974)

On the Whitehead theorem in shape theory. I. (**53** #11568)

**McMillan, D. R., Jr.** (*with* Shrikhande, N.) On the simple connectivity of a quotient space. (Serbo-Croatian summary) (**58** #18415)

**Mylopoulos, John** *See* **Tourlakis, George,** (**48** #10230)

**Nowak, Sławomir** *See* **Dydak, Jerzy; et al.,** (**54** #1157)

**Raymond, Frank** *See* **Conner, Pierre,** (**51** #4287)

**Shrikhande, N.** *See* **McMillan, D. R., Jr.,** (**58** #18415)

**Sieradski, Allan J.** Combinatorial isomorphisms and combinatorial homotopy equivalences. (**53** #9227)

**Skrjago, A. M.** The homotopy type of certain compact semigroups. (Russian) (**45** #8764)

**Smallen, David L.** Weak equivalence of fibrations. (**48** #7272)

**Strok, M.** *See* **Dydak, Jerzy; et al.,** (**54** #1157)

**Taylor, Laurence R.** *See* **Farrell, F. Thomas; et al.,** (**48** #12545)

**Tourlakis, George** (*with* Mylopoulos, John) Some results in computational topology. (**48** #10230)

**Ummel, Brian R.** Imbedding classes and *n*-minimal complexes. (**47** #5883)

**Wagoner, John B.** *See* **Farrell, F. Thomas; et al.,** (**48** #12545)

## 55D15 Classification of homotopy type

**Adams, John Frank** ★Localisation and completion. **54** #8621

**Baues, Hans Joachim** Rationale Homotopietypen. (English summary) **56** #1297

**Body, Richard** Regular rational homotopy types. **52** #1679

**Bousfield, A. K.** (*with* Gugenheim, V. K. A. M.) On PL de Rham theory and rational homotopy type. **54** #13906

**Brown, Edward M.** Proper homotopy theory in simplicial complexes. **50** #8513

**Cenkl, Bohumil** Iterated integrals and homotopy periods. **57** #17630

**Chen, Kuo-Tsai** Connections, holonomy and path space homology. **55** #13414

**Cockcroft, W. H.** (*with* Moss, R. M. F.) On the simple homotopy type of certain two-dimensional complexes. **47** #1049

**(Deligne, Pierre)** *See* **Morgan, John W., 56** #13209

**Dror, Emmanuel** Homology spheres. **48** #7268

Pro-nilpotent representation of homology types. **47** #2593

Homology circles and knot complements. **52** #15443

(*with* Dwyer, William G.) Prenilpotent spaces. **53** #11604

(*with* Dwyer, William G.; Kan, Daniel M.) An arithmetic square for virtually nilpotent spaces. **55** #11246

**Dwyer, William G.** *See* **Dror, Emmanuel, 53** #11604 *and* **Dror, Emmanuel; et al., 55** #11246

**Dydak, Jerzy** On a conjecture of D. A. Edwards (*Algebraic and geometrical methods in topology* (Conf. Topological Methods in Algebraic Topology, State Univ. New York, Binghamton, N.Y., 1973), pp. 58-107, Lecture Notes in Math., Vol. 428, Springer, Berlin, 1974). **52** #4276

**Dyer, Micheal N.** Homotopy trees for periodic groups. **50** #14734

On the 2-realizability of 2-types. **52** #1680

(*with* Sieradski, Allan J.) Trees of homotopy types of 2-dimensional CW complexes. II. **54** #13907

Projective *k*-invariants. **54** #3691

Homotopy classification of $(\pi, m)$-complexes. **53** #4050 (E **58** #2798)

Erratum: "Homotopy classification of $(\pi, m)$-complexes" (J. Pure Appl. Algebra 7 (1976), no. 3, 249–282). **58** #2798

Homotopy trees with trivial classifying ring. **53** #1580

**Edwards, David A.** (*with* Geoghegan, Ross) Compacta weak shape equivalent to ANR's. **52** #15444

(*with* Hastings, Harold M.) Why the *R*-completion works. **56** #13208

**Feder, Samuel** (*with* Gitler, Samuel) Stable homotopy types of stunted complex projective spaces. **47** #4252

(*with* Gitler, Samuel) Stunted projective spaces and the *J*-order of the Hopf bundle. **50** #1233

(*with* Gitler, Samuel) The classification of stunted projective spaces by stable homotopy type. **54** #11317

**(Fiedorowicz, Zbigniew)** *See* **Adams, John Frank, 54** #8621

**(Fuks, D. B.)** *See* **Sullivan, Dennis, 58** #13006b

**Ganea, Tudor** Some problems on numerical homotopy invariants. **49** #3910

**Gavrilov, A. D.** Effective computability of the rational homotopy type. (Russian) **58** #24256

**Geoghegan, Ross** Fibered stable compacta have finite homotopy type. **58** #24257

*See also* **Edwards, David A., 52** #15444

**Gitler, Samuel** *See* **Feder, Samuel, 47** #4252; **Feder, Samuel, 50** #1233 *and* **Feder, Samuel, 54** #11317

**(Griffiths, Phillip)** *See* **Morgan, John W., 56** #13209
**Gugenheim, V. K. A. M.** On the multiplicative structure of the de Rham theory. **54** #6127
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**Harper, John R.** The mod 3 homotopy type of $F_4$. **51** #1810
**Hastings, Harold M.** *See* **Edwards, David A., 56** #13208
**Held, René P.** (*with* Sjerve, Denis K.) On the stable homotopy type of Thom complexes. **49** #3911
**Hilton, Peter John** Localization of nilpotent spaces. **52** #1681
(*with* Mislin, Guido) Remarkable squares of homotopy types. **54** #13908
Localization of nilpotent spaces. **51** #1811
Localization theories for groups and homotopy types. **57** #1481
Localization in group theory and homotopy theory. **57** #7583
**Holzsager, Richard A.** When certain natural maps are equivalences. **47** #4253
**Hosokawa, Hiroshi** Infinite expansions for locally finite complexes. **49** #9841
**Hughes, K. R.** Deep topological invariants from the de Rham theory. **56** #16617
**Kan, Daniel M.** (*with* Miller, Edward Y.) Sullivan's de Rham complex is definable in terms of its 0-forms. **53** #14483
*See also* **Dror, Emmanuel; et al., 55** #11246
**Kobayashi, Teiichi** (*with* Sugawara, Masahiro) On stable homotopy types of stunted lens spaces. II. **57** #4155
**Kodama, Yukihiro** (*with* Ono, Jin; Watanabe, Tadashi) AR associated with ANR-sequence and shape. **58** #18422
**Lang, George E., Jr.** Localizations and evaluation subgroups. **51** #4228
**Lehmann, Daniel** ★Théorie homotopique des formes différentielles (d'après D. Sullivan). **58** #7616
**Leitch, R. D.** The homotopy commutative cube. **51** #1812
**Lemaire, Jean-Michel** "Autopsie d'un meurtre" dans l'homologie d'une algèbre de chaînes. (English summary) **58** #18423
**Maehara, Ryuji** Note on homotopy type. **54** #6128
**Marry, Pierre** Type d'homotopie rationnelle relative des fibres en variétés de Stiefel. **57** #1482
**Martínez Gadea, Pedro** Rational homotopy type and differential forms. (Spanish) **50** #11224
**Menu, Jan** On weak homotopy. **49** #6226
**Miller, Edward Y.** *See* **Kan, Daniel M., 53** #14483
**Mislin, Guido** The genus of an $H$-space. **49** #3912
Groups with cyclic Sylow subgroups and finiteness conditions for certain complexes. **56** #6651
*See also* **Hilton, Peter John, 54** #13908
**Morgan, John W.** The rational homotopy theory of smooth, complex projective varieties (following P. Deligne, P. Griffiths, J. Morgan, and D. Sullivan) (Invent. Math. **29** (1975), no. 3, 245–274). **56** #13209
**Moss, R. M. F.** *See* **Cockcroft, W. H., 47** #1049
**Ono, Jin** *See* **Kodama, Yukihiro; et al., 58** #18422
**Ōshima, Hideaki** On stable homotopy types of some stunted spaces. **57** #4156
**Porter, Timothy** Paired homotopy type. **51** #4229
**Postnikov, M. M.** Localization of topological spaces. (Russian) **58** #24258
**Roitberg, Joseph** Rational Lie algebras and $p$-isomophisms of nilpotent groups and homotopy types. **51** #1813 (E **54** #13909)
Erratum to: "Rational Lie algebras and $p$-isomorphisms of nilpotent groups and homotopy types" (Comment. Math. Helv. **50** (1975), 1–8). **54** #13909
**Shastri, A. R.** On the images of tori under degree one maps. **54** #6129
**Sieradski, Allan J.** Non-uniqueness of homotopy factorizations into irreducible polyhedra. **45** #2707
Square roots up to homotopy type. **45** #5998
Non-cancellation and a related phenomenon for the lens spaces. **57** #17631
*See also* **Dyer, Micheal N., 54** #13907
**Sjerve, Denis K.** *See* **Held, René P., 49** #3911
**Sternstein, Martin** Necessary and sufficient conditions for homotopy classification by cohomology and homotopy homomorphisms. **45** #6001
**Sugawara, Masahiro** *See* **Kobayashi, Teiichi, 57** #4155
**Sullivan, Dennis** ★Geometric topology. Part I. **58** #13006a
★Геометрическая топология. (Russian) [Geometric topology] **58** #13006b
*See also* **Morgan, John W., 56** #13209 *and* **Lehmann, Daniel, 58** #7616
**Takahashi, Hideo** Degrees of maps and homotopy type. **55** #9077
**Varadarajan, K.** Finiteness obstruction for nilpotent spaces. **58** #7617
**Vogt, Rainer M.** Homotopy limits and colimits. **48** #9709
**Watanabe, Tadashi** *See* **Kodama, Yukihiro; et al., 58** #18422
**Whitley, W. Thurmon** Homotopy types of the deleted product of unions of two simplexes. **45** #1165
**Wilkerson, Clarence W.** Classification of spaces of the same $n$-type for all $n$. **57** #13930
**Wojtkowiak, Zdzisław** On $Z/p$ free action on finite CW complex. (Russian summary) **58** #2799
**Zabrodsky, Alexander** $p$ equivalences and homotopy type. **51** #14036

Secondary classifications:

**Alder, Michael D.** Inverse limits of simplicial complexes. (**50** #8541)
**Allday, Christopher** On the rational homotopy of fixed point sets of torus actions. (**58** #18501)
**Babenko, I. K.** Lie algebras of homotopy groups of minimal Sullivan models. (Russian) (**55** #13418)
**Brown, Kenneth S.** Homological criteria for finiteness. (**51** #12995)
**Cherenack, Paul** Unirational homotopy theory. (**57** #3133)
**Cohen, Joel M.** Homotopy surfaces. (**50** #11237)
**Deleanu, Aristide** (*with* Hilton, Peter John) Generalized shape theory. (**58** #22247)
**Gugenheim, V. K. A. M.** On Chen's iterated integrals. (**58** #2802)
**Halperin, Stephen** Finiteness in the minimal models of Sullivan. (**57** #1493)
**Hansen, Vagn Lundsgaard** The homotopy problem for the components in the space of maps on the $n$-sphere. (**50** #14838)
**Hendriks, Harrie** Obstruction theory in 3-dimensional topology: an extension theorem. (**56** #13222)
**Hilton, Peter John** (*with* Mislin, Guido) Bicartesian squares of nilpotent groups. (**52** #14082)
*See also* **Deleanu, Aristide,** (**58** #22247)
**Kahn, Peter J.** Mixing homotopy types of manifolds. (**51** #14106)
**Lieberman, Gerald** The inverse limit and first derived functor, a short exact sequence. (**50** #5794)
**Mislin, Guido** *See* **Hilton, Peter John,** (**52** #14082)
**Moszyńska, Maria** The Fox theorem and the Whitehead theorem in the theory of shapes. (**51** #4156)
**Parks, James M.** On a construction of classification spaces. (**55** #9093)
**Porter, Timothy** Sur le type d'homotopie couplé. (**49** #7977)
**Shiga, Hiroo** On spaces with a map $CP^n \to M$ of degree one. (**53** #9252)
**Sullivan, Dennis** Galois symmetry in manifold theory at the primes. (**56** #9541)
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Differential forms and the topology of manifolds. (**51** #6838)
**Vo Thanh Liem** Certain continua in $S^n$ with homeomorphic complements have the same shape. (**58** #13049)
**Wang, Qi Ming** *See* **Wu, Wên Chün,** (**58** #24268)
**Whitley, W. Thurmon** Deleted products of spaces which are unions of two simplexes. (**50** #11251)
**Wu, Wên Chün** (*with* Wang, Qi Ming) Theory of $I^*$-functor in algebraic topology. $I^*$-functor of a fiber space. (**58** #24268)

## 55D20 Eilenberg-MacLane spaces

**Demers, Luc** La structure des copolyèdres au sens de Stamm. **53** #6545
**Dyer, Eldon** (*with* Vasquez, A. T.) Some small aspherical spaces. **49** #6227
**Jekel, Solomon M.** Simplicial $K(G, 1)$'s. **56** #1298
**Johnson, David Copeland** (*with* Wilson, W. Stephen) The projective dimension of the complex bordism of Eilenberg-MacLane spaces. **57** #7584
**Kan, Daniel M.** (*with* Thurston, William P.) Every connected space has the homology of a $K(\pi,1)$. **54** #1210
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**Matumoto, Takao** On $G$-CW complexes and a theorem of J. H. C. Whitehead. **49** #9842
**Moore, John C.** Cartan's constructions, the homology of $\mathcal{K}(\pi,n)$'s, and some later developments. **54** #1211
**Munkholm, Hans J.** shm maps of differential algebras. I. A characterization up to homotopy. **55** #11247a
**Porter, Timothy** Une théorie des obstructions dans une catégorie des diagrammes et des applications à la théorie d'homotopie de Čech. I. **50** #14735
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Une théorie des obstructions dans une catégorie des diagrammes et des applications à la théorie d'homotopie de Čech. III. **51** #11486
**Ruchti, René** On formal spaces and their loop space. **58** #7618
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**Clark, Allan** (*with* Ewing, John) The realization of polynomial algebras as cohomology rings. (**51** #4221)
**Ewing, John** *See* **Clark, Allan,** (**51** #4221)
**Friedlander, Eric M.** $K(\pi, 1)$'s in characteristic $p > 0$. (**47** #1809)
**Goldfeather, Jay E.** Incompressibility and fibrations. (**56** #16630)
**Illusie, Luc** ★Complexe cotangent et déformations. I. (**58** #10886a)
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**Kristensen, Leif** (*with* Pedersen, Erik Kjaer) The $\mathcal{C}$-module structure for the cohomology of two-stage spaces. (**48** #3050)
**Pedersen, Erik Kjaer** *See* **Kristensen, Leif,** (**48** #3050)

## 55D25 Spanier-Whitehead duality

**Fischer, Gerold** Zwei-triangulierte Monoidkategorien und Spanier-Whitehead Dualität. **49** #3914
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**Anderson, Donald W.** $K$-theory, simplicial complexes and categories. **54** #8622
**Barratt, Michael** (*with* Eccles, Peter J.) $\Gamma^+$-structures. I. A free group functor for stable homotopy theory. **50** #1234a
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(*with* Eccles, Peter J.) $\Gamma^+$-structures. III. The stable structure of $\Omega^\infty\Sigma^\infty A$. **50** #1234c

**Baues, Hans Joachim** Eine Vermutung über Schleifenräume von Sphären. **53** #4051

**Becker, James C.** (*with* Schultz, Reinhard) Spaces of equivariant self-equivalences of spheres. **48** #1220

**Boardman, J. M.** Homotopy structures and the language of trees. **50** #3215

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**Brown, Edgar H., Jr.** (*with* Peterson, Franklin P.) On the stable decomposition of $\Omega^2S^{r+2}$. **58** #18424

**Chen, Kuo-Tsai** Iterated path integrals. **56** #13210

**Cobb, Peter V. Z.** $P_n$-spaces and $n$-fold loop spaces. **50** #14737

**Croom, Fred H.** Exact loop space sequences. **45** #4416

**Eccles, Peter J.** *See* **Barratt, Michael**, **50** #1234a; **Barratt, Michael**, **50** #1234b *and* **Barratt, Michael**, **50** #1234c

**Ewing, John** Sphere bundles over spheres as loop spaces mod $p$. **48** #3040

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**Fiedorowicz, Zbigniew** (*with* Priddy, Stewart B.) Loop spaces and finite orthogonal groups. **51** #11487

**Goldfeather, Jay E.** Compressible maps. **54** #11318

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**Hansen, Vagn Lundsgaard** On the fundamental group of a mapping space. An example. **49** #6228

**Lada, Thomas J.** An operad action on infinite loop space multiplication. **56** #13211

**Larmore, Lawrence L.** (*with* Thomas, Emery) Mappings into loop spaces and central group extensions. **47** #5865

**Lemaire, Jean-Michel** ★Algèbres connexes et homologie des espaces de lacets. **51** #6793

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**Ligaard, Hans** Infinite loop maps from $SF$ to $BO_\otimes$ at the prime 2. **56** #16618

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**Malraison, Pierre J., Jr.** Homotopy associative categories. **52** #6708

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**May, J. Peter** ★The geometry of iterated loop spaces. **54** #8623b

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**McDuff, Dusa** Configuration spaces of positive and negative particles. **50** #11225

**Nishida, Gorō** On infinite loop spaces. (Japanese) **58** #31065

**Nomura, Yasutoshi** Iterated loop spaces. **48** #1221

**Peterson, Franklin P.** *See* **Brown, Edgar H., Jr.**, **58** #18424

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**Ray, Nigel** The loop group of a mapping cone. **49** #8007

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**Rector, David L.** Loop structures on the homotopy type of $S^3$. **49** #3916

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**Singer, William M.** Iterated loop functors and the homology of the Steenrod algebra. **53** #1581

**Snaith, Victor P.** A stable decomposition of $\Omega^nS^nX$. **49** #3918

The total Chern and Stiefel-Whitney classes are not infinite loop maps. **55** #6422

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**Stasheff, James Dillon** *See* **Rector, David L.**, **51** #14037

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**Tornehave, Jørgen** *See* **Madsen, Ib; et al.**, **58** #13007 *and* **May, J. Peter**, **58** #13008

**Tsuchiya, Akihiro** Higher order Dyer-Lashof operations and Eilenberg-Moore spectral sequences. **53** #9204

**Vogt, Rainer M.** *See* **Boardman, J. M.**, **54** #8623a

**Wilkerson, Clarence W.** Spheres which are loop spaces mod $p$. **47** #5866

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**Cohen, Frederick R.** Homology of $\Omega^{(n+1)}\Sigma^{(n+1)}X$ and $C_{(n+1)}X, n>0$. (**49** #3939)

(*with* Lada, Thomas J.; May, J. Peter) ★The homology of iterated loop spaces. (**55** #9096)

**Curtis, Edward B.** The Dyer-Lashof algebra and the $\Lambda$-algebra. (**51** #14054)

**Ewing, John** Some examples of sphere bundles over spheres which are loop spaces mod $p$. (**50** #5796)

**Flaherty, Frank J.** The volume of a tube in complex projective space. (**47** #4187)

**Klein, Peter** ★Über die Kohomologie des freien Schleifenraums. (**50** #1286)

Der freie Schleifenraum für Räume mit fast freier rationaler Kohomologie-Algebra. (**51** #1875)

**Kochman, Stanley O.** Symmetric Massey products and a Hirsch formula in homology. (**48** #9721)

**Lada, Thomas J.** *See* **Cohen, Frederick R.; et al.**, (**55** #9096)

**May, J. Peter** The spectra associated to $\mathcal{I}$-monoids. (**58** #7609)

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**Quillen, Daniel** Higher $K$-theory for categories with exact sequences. (**49** #384)

**Ravenel, Douglas C.** (*with* Wilson, W. Stephen) The Hopf ring for complex cobordism. (**50** #8502)

**Ruchti, René** On formal spaces and their loop space. (**58** #7618)

**Snaith, Victor P.** Dyer-Lashof operations in $K$-theory. (**52** #15463)

Infinite loop maps and the complex $J$-homomorphism. (**53** #14487)

**Wagoner, John B.** Delooping classifying spaces in algebraic $K$-theory. (**50** #7293)

**Wilkerson, Clarence W.** $K$-theory operations in mod $p$ loop spaces. (**48** #3051)

Classifying spaces, Steenrod operations and algebraic closure. (**56** #1307)

**Wilson, W. Stephen** *See* **Ravenel, Douglas C.**, (**50** #8502)

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**Body, Richard** (*with* Douglas, Roy) Homotopy types within a rational homotopy type. **50** #5787

**Cohen, Frederick R.** Splitting certain suspensions via self-maps. **53** #9205

**Douglas, Roy** *See* **Body, Richard**, **50** #5787

**Fukuhara, Kenzo** *See* **Ando, Hideo; et al.**, **50** #5788

**Hoo, Cheong S.** Cyclic maps from suspensions to suspensions. **49** #9843

**Kachi, Hideyuki** Note on the suspension-order of a some complex. **46** #2666

**Kamagata, Toshio** *See* **Ando, Hideo; et al.**, **50** #5788

**Kamps, Klaus Heiner** Zur Struktur der Puppe-Folge für halbexakte Funktoren. **50** #8514

**Ledergerber, Paul G.** ★Torsion decomposition of finite CW-complexes. (German introduction) **49** #6229

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**Leise, James A.** The Bott suspension and the intrinsic join. **53** #6546

**Mahowald, Mark E.** On the double suspension homomorphism. **55** #11248

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**Meier, Willi** ★Phantomabbildungen und klassifizierende Räume. **54** #1213

**Mislin, Guido** Localization with respect to $K$-theory. **57** #7585

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**Motreanu, D.** Some properties of the reduced suspension and a generalization of CW-complexes. **55** #11249

**Rutter, John W.** The suspension of the loops on a space with comultiplication. **51** #6794

**Segal, Graeme B.** Equivariant stable homotopy theory. **54** #11319

**Spencer, Christopher B.** A generalisation of a result of T. Ganea. **49** #8009

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**Varadarajan, K.** Some phenomena in homotopical algebra. **51** #14039

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**Chan, Wing Man** (*with* Hoffman, Peter) Vector bundles over suspensions. (**51** #9057)

**Frei, Armin** (*with* Piccinini, Renzo A.) Left Kan extensions of weakly stable functors. (**58** #5824)

**Gottlieb, Daniel Henry** Fibering suspensions. (**58** #2812)

**Hauschild, Henning** Äquivariante Homotopie. I. (**57** #7626)

**Hoffman, Peter** *See* **Chan, Wing Man**, (**51** #9057)

**Kraines, David** The kernel of the loop suspension map. (**54** #11334)

**Piccinini, Renzo A.** *See* **Frei, Armin**, (**58** #5824)

**Porter, Timothy** On the $T_0$-shape of the suspension of a space. (**50** #5732)

**Rutter, John W.** A derived homotopy product. (**48** #9713)

**Szűcs, A.** A geometric proof of a theorem of Serre on $p$-components of $\pi_{n+k}(S^k)$. (**56** #13212)

## 55D45 *H*-spaces and duals

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(*with* Murley, C. P.; Shar, Albert O.) The number of multiplications on $H$-spaces of type (3, 7). **51** #4234

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**Beck, Jon** Classifying spaces for homotopy-everything $H$-spaces. **45** #1160

**Belfi, Victor** (*with* Wilkerson, Clarence W.) Some examples in the theory of $P$-completions. **54** #6130

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**Boardman, J. M.** (*with* Vogt, Rainer M.) ★Гомотопически инвариантные алгебраические структуры на топологических пространствах. (Russian) [Homotopy invariant algebraic structures on topological spaces] **58** #13009

**Borel, François** Sur les groupes fondamentaux des $H$-espaces. (English summary) **54** #13910

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**Croom, Fred H.** Homotopy type of total loop spaces. **46** #4528

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**Curtis, Morton** A homotopy theoretic approach to Lie groups. **52** #9219

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**Hoffman, Peter** $K(X)$ as a comodule. **52** #11901
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**Hubbuck, J. R.** Simply connected $H$-spaces of rank 2 with 2-torsion. **52** #15446
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**Porter, Richard D.** An $H$-space with finite dimensional homology whose loop space has torsion. **46** #9970
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**Roitberg, Joseph** On the homotopy classification of rank 3 $H$-spaces. **45** #1164
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**Becker, James C.** (*with* Schultz, Reinhard) Spaces of equivariant self-equivalences of spheres. (**48** #1220)

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**Schultz, Reinhard** Differentiable $Z_p$ actions on homotopy spheres. (**50** #8576)

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Framings of sphere bundles over spheres, the plumbing pairing, and the framed bordism classes of rank two simple Lie groups. (**52** #6761)

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**Šokurov, A. V.** Cohomology of the ring of operations in unitary cobordism theory and homotopy invariants of continuous maps. (Russian) (**58** #18499)

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**Becker, James C.** (*with* Gottlieb, Daniel Henry) The transfer map and fiber bundles. **51** #14042

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**Green, Paul S.** (*with* Holzsager, Richard A.) Secondary operation in *K*-theory and applications to metastable homotopy. **48** #5068

**Held, René P.** (*with* Sjerve, Denis K.) Sur certains complexes de Thom et le *J*-homomorphisme. **47** #5871

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**Stasheff, James Dillon** *See* **Clough, Robert R., 48** #5067

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**Toda, Hiroshi** *See* **Mimura, Mamoru; et al., 45** #4413

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**Ewing, John** (*with* Smith, Larry) Cobordism of hyperframed manifolds and the stable *J*-homomorphism. (**56** #16646)

**Friedlander, Eric M.** Fibrations in etale homotopy theory. (**51** #3175)

**Mahowald, Mark E.** Description homotopy of the elements in the image of the *J*-homomorphism. (**51** #6804)

**Sigrist, François** Détermination des groupes $J(CP^4)$ et $J(HP^2)$. Applications. (**48** #12504)

**Smith, Larry** *See* **Ewing, John,** (**56** #16646)

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## 55E55 Cohomotopy groups

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**Greub, Werner H.** (*with* Halperin, Stephen; Vanstone, Ray) ★Connections, curvature, and cohomology. (**53** #4110 (EA **53**) )
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**Dakin, M. K.** (*with* Šeda, Anthony Karel) *G*-spaces and topological groupoids. (Serbo-Croatian summary) **57** #13942
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**Meyer, Werner** Die Signatur von lokalen Koeffizientensystemen und Faserbündeln. **46** #4532

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**Obădeanu, Virgil** Fibrations projectives. **48** #7270

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**Ščerbakov, R. N.** (*with* Sluhaev, V. V.) Differential topology aspects of the Cartan method. (Russian) **48** #7271

**Schafer, James A.** The signature of fiber bundles. **48** #3046

**Schneider, Victor P.** (*with* Kuhn, Stephen) The Whyburn construction and fiber bundles. **55** #6427

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**Sigrist, François** (*with* Suter, Ueli) On symplectic Stiefel manifolds. (Italian summary) **48** #5070

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**Zabrodsky, Alexander** On the homotopy type of principal classical group bundles over spheres. **45** #7715 (E **47** #2598)

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**Zvengrowski, Peter** Skew linear vector fields on spheres. **45** #9329

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**Becker, James C.** (*with* Gottlieb, Daniel Henry) The transfer map and fiber bundles. (**51** #14042)

**Breitsprecher, Siegfried** Zur topologischen Struktur zweidimensionaler projektiver Ebenen. (**48** #2890)

**Dekrét, Anton** On canonical forms on non-holonomic and semi-holonomic prolongations of principal fibre bundles. (**46** #10019)

**Gottlieb, Daniel Henry** *See* **Becker, James C.,** (**51** #14042)

**Greub, Werner H.** (*with* Halperin, Stephen; Vanstone, Ray) ★Connections, curvature, and cohomology. Vol. I: De Rham cohomology of manifolds and vector bundles. (**49** #1423)

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**Handel, David** Fibre bundle homotopy epimorphisms. (**51** #6791)

**Held, René P.** (*with* Suter, Ueli) L'anneau de Grothendieck des groupes orthogonaux projectifs. (**51** #4247)

**Lees, J. Alexander** ★Notes on bundle theory. (**50** #11235)

**Maciejko, R.** Symmetry conditions and non-abelian gauge fields. (**57** #10636)

**Mayer, Meinhard E.** Introduction to the fiber-bundle approach to gauge theories. (**56** #17615)

**Neagu, Alexandru** An adaptation of the moving frame method to the study of geometrical object fields. (**58** #24079)

**Papuc, Dan I.** (*with* Popescu, I. D.) Sur un tissu associé au fibré des repères projectifs et les connexions infinitésimales afférentes. I. (Romanian summary) (**58** #24104a)

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**Lin, James P.** $H$-spaces with finitely generated cohomology algebras. (**51** #4235)

**Mahowald, Mark E.** Some remarks on the Kervaire invariant problem from the homotopy point of view. (**48** #1245)

**Mimura, Mamoru** (*with* Toda, Hirosi) A representation and the quasi $p$-regularity of the compact Lie group. (**53** #4108)

**Petek, Peter** On the $Z_2$ cohomology ring of symmetric groups. (Slovenian summary) (**58** #2800)

**Ravenel, Douglas C.** A definition of exotic characteristic classes of spherical fibrations. (**48** #5072)

**Toda, Hirosi** *See* **Mimura, Mamoru**, (**53** #4108)

**Zabrodsky, Alexander** Secondary cohomology operations in the module of indecomposables. (**51** #6797)

**Zahler, Raphael S.** Existence of the stable homotopy family $\{\gamma_t\}$. (**48** #3044)
Detecting stable homotopy with secondary cobordism operations. I. (**51** #4240)

### 55G25 *K*-theory operations and generalized cohomology operations

**Adams, John Frank** Operations of the $n$th kind in $K$-theory, and what we don't know about $RP^\infty$. **49** #3941
(*with* Hoffman, Peter) Operations on $K$-theory of torsion-free spaces. **53** #4063
(*with* Clarke, Francis) Stable operations on complex $K$-theory. **56** #13219

**Aikawa, Tetsuya** The products in the Steenrod rings of the complex and sympletic cobordism theories. **51** #11507 (E **53** #9211)
A correction to: "The products in the Steenrod rings of the complex and sympletic cobordism theories" (Publ. Res. Inst. Math. Sci. **10** (1974/75), no. 3, 581–600). **53** #9211

**Allard, Jacques** Adams operations in $KO(X)\oplus KSp(X)$. **51** #9061

**Araki, Shôrô** Multiplicative operations in $BP$ cohomology. **52** #4288

**Bendersky, Martin** Rational cobordism operations. **58** #13034

**Brown, Edgar H., Jr.** The dual and excess of higher order cohomology operators. **52** #1695

**Clarke, Francis** *See* **Adams, John Frank**, **56** #13219

**Cohen, Frederick R.** (*with* Lada, Thomas J.; May, J. Peter) ★The homology of iterated loop spaces. **55** #9096

**Davis, Donald M.** (*with* Mahowald, Mark E.) A nondesuspension theorem for stunted real projective spaces. **57** #13947

**Feder, Samuel** (*with* Iberkleid, Wolf) Secondary operations in $K$-theory and the generalized vector field problem. **56** #9531

**Friedlander, Eric M.** Computations of $K$-theories of finite fields. **52** #15461

**Golo, V. L.** The Adams operation and the norm residue symbol. (Russian) **52** #11912

**Hansen, Idar** On Adams' splitting of $K$-theory and complex cobordism. **57** #1492

**Hoffman, Peter** *See* **Adams, John Frank, 53** #4063

**Iberkleid, Wolf** *See* **Feder, Samuel, 56** #9531

**Jankowski, Andrzej** Algebras of the cohomology operations in some cohomology theories. **49** #3942

**Kane, Richard** Rational BP operations and the Chern character. **57** #13948

**Knutson, Donald** Binomial λ-rings and a topological corollary. **51** #14050

**Kobayashi, Teiichi** Note on γ-operations in $KO$-theory. **50** #8522

**Kozma, Ilan** Irreducibles in the Landweber Novikov algebra. **53** #1590

**Kultze, Rolf** Cobordismenoperationen in $U^*(-;Z_p)$. **53** #9212

**Lada, Thomas J.** *See* **Cohen, Frederick R.; et al., 55** #9096

**Landweber, Peter S.** Annihilator ideals and primitive elements in complex bordism. **48** #1235

Invariant regular ideals in Brown-Peterson homology. **52** #6718

**Loday, Jean-Louis** Structures multiplicatives en $K$-théorie. **46** #6360

**Madsen, Ib** On the action of the Dyer-Lashof algebra in $H_*(G)$. **52** #9228

**Mahowald, Mark E.** (*with* Milgram, R. James) Operations which detect $Sq^4$ in connective $K$-theory and their applications. **55** #6429

*See also* **Davis, Donald M., 57** #13947

**May, J. Peter** *See* **Cohen, Frederick R.; et al., 55** #9096

**Milgram, R. James** *See* **Mahowald, Mark E., 55** #6429

**Ravenel, Douglas C.** Multiplicative operations in BP*BP. **52** #1696

The structure of Morava stabilizer algebras. **54** #8632

The cohomology of the Morava stabilizer algebras. **55** #4170

**Seymour, R. M.** Vector bundles invariant under the Adams operations. **53** #6560

**Smith, Larry** Operations in mod $p$ connective $K$ theory and the $J$ homomorphism. **47** #9621

The Todd character and cohomology operations. **47** #9622

**Snaith, Victor P.** On cyclic maps. **51** #14051

Dyer-Lashof operations in $K$-theory. **52** #15463

On $K_*(\Omega^2X;Z/2)$. **52** #15462

**Stauffer, H. B.** The multiplication problem for spheres. **57** #7599

**Thomas, Alan** A relation between $K$-theory and cohomology. **51** #6811

**Wilkerson, Clarence W.** $K$-theory operations in mod $p$ loop spaces. **48** #3051

**Zdravkovska, Smilka** On operations in homology theories. **48** #12529

Secondary classifications:

**Hansen, Idar** (*with* Johnson, David Copeland) The primitive elements in $MU_*K(Z/p, 1)$. (**53** #9258)

**Hubbuck, J. R.** Stable homotopy invariant non embedding theorems in Euclidean space. (**54** #13937)

**Johnson, David Copeland** *See* **Hansen, Idar,** (**53** #9258)

**Karoubi, Max** (*with* Villamayor, Orlando E.) $K$-théorie algébrique et $K$-théorie topologique. I. (**47** #1915)

**Kervaire, Michel A.** Opérations d'Adams en théorie des représentations linéaires des groupes finis. (**54** #5325)

**Kobayashi, Teiichi** Some $Z_q$-equivariant immersions. (**53** #14508)

**Kratzer, Charles** Opérations d'Adams en $K$-théorie algébrique. (English summary) (**58** #22244)

**Smith, Larry** Secondary cohomology theories. (**49** #3898)

**Šokurov, A. V.** Cohomology of the ring of operations in unitary cobordism theory and homotopy invariants of continuous maps. (Russian) (**58** #18499)

**Spencer, Christopher B.** Generalised cohomology operations and the flat product. (**49** #8012)

**Villamayor, Orlando E.** *See* **Karoubi, Max,** (**47** #1915)

**Wilkerson, Clarence W.** Self-maps of classifying spaces. (**52** #4325)

**Yagita, Nobuaki** On the algebraic structure of cobordism operations with singularities. (**56** #3832)

## 55G30 Massey products

**Alexander, James C.** Cobordism Massey products. **45** #2700

**Beĭtrišvili, T. V.** On the Massey product. (Russian. Georgian and English summaries) **58** #24267

**Chen, Kuo-Tsai** Free subalgebras of loop space homology and Massey products. **45** #4411

**Drachman, Byron** (*with* Kraines, David) A duality between transpotence elements and Massey products. **46** #4533

**Kochman, Stanley O.** Symmetric Massey products and a Hirsch formula in homology. **48** #9721

**Kraines, David** *See* **Drachman, Byron, 46** #4533

**O'Neill, Edward J.** On Massey products. **58** #2816

**Snaith, Victor P.** Functional Massey products and homological algebra. **45** #1156

Secondary classifications:

**Davis, Donald M.** (*with* Snaith, Victor P.) Massey products and $H$ $(p,q)$-systems. (**48** #7279)

**Snaith, Victor P.** *See* **Davis, Donald M.,** (**48** #7279)

**Turaev, V. G.** The Milnor invariants and Massey products. (Russian. English summary) (**56** #9538)

## 55G35 Obstruction theory

**Baues, Hans Joachim** ★Obstruction theory on homotopy classification of maps. **57** #7600

**Davis, Donald M.** (*with* Mahowald, Mark E.) A strong nonimmersion theorem $RP^{8l+7}$. **53** #9213

(*with* Mahowald, Mark E.) Immersions of complex projective spaces and generalized vector field problem. **56** #3839

**Gray, Brayton** Ring spectra. **49** #8015

**Hill, Richard O., Jr.** A geometric interpretation of a classical group cohomology obstruction. **52** #11911

**Kahn, Donald W.** Obstruction theory in the stable range. **49** #11511

**Larmore, Lawrence L.** Twisted cohomology theories and the single obstruction to lifti **50** #5799

Enumeration of liftings in the non-principal case. **50** #8523

**Little, Robert D.** A relation between obstructions and functional cohomology operations. **54** #6143

Torsion elements and the classification of vector bundles. **55** #4171

**Mahowald, Mark E.** (*with* Rigdon, Robert D.) Obstruction theory with coefficients i spectrum. **58** #7630

*See also* **Davis, Donald M., 53** #9213 *and* **Davis, Donald M., 56** #3839

**Papastavridis, Stavros G.** A formula for the obstruction to transversality. **47** #1054

**Porter, Timothy** Obstructions in shape theory. **51** #14052

Une théorie des obstructions dans une catégorie des diagrammes et des applications à la théorie d'homotopie de Čech. IV. **53** #9214

Une théorie des obstructions dans une catégorie des diagrammes et des applications à la théorie d'homotopie de Čech. V. **53** #9215

**Rigdon, Robert D.** *See* **Mahowald, Mark E., 58** #7630

**Steenrod, Norman E.** Cohomology operations, and obstructions to extending continuo functions. **45** #7705

**Thomas, Charles** Structures on manifolds defined by cross-sections. **45** #9355

**Vaseekaran, C.** Equivariant homotopy theory. **48** #9722

Secondary classifications:

**Anderson, Douglas R.** Generalized product theorems for torsion invariants with applications to flat bundles. (**45** #2713)

**Baues, Hans Joachim** Hindernisse in dem Produkt von Suspensionen. (**49** #8011)

**Brumfiel, Gregory W.** (*with* Morgan, John W.) Homotopy theoretic consequences of Levitt's obstruction theory to transversality for spherical fibrations. (**55** #4187)

**Matsumoto, Yukio** On homotopy invariance of triangulability of certain 5-manifold (**45** #6013)

**Matumoto, Takao** Equivariant cohomology theories on $G$-CW complexes. (**49** #8003)

**Maunder, C. R. F.** Improving the general-position properties of homology manifold (**47** #9633)

**Morgan, John W.** *See* **Brumfiel, Gregory W.,** (**55** #4187)

**Porter, Timothy** Une théorie des obstructions dans une catégorie des diagrammes et d applications à la théorie d'homotopie de Čech. I. (**50** #14735)

**Yasui, Tsutomu** Note on the enumeration of embeddings of real projective space (**49** #3982)

**Zabreĭko, P. P.** On the theory of periodic vector fields. (Russian) (**56** #13206)

## 55G36 Extension and compression of mappings

**Adem, José** On nonsingular bilinear maps. II. **47** #7741

**Goldfeather, Jay E.** Incompressibility and fibrations. **56** #16630

**Larmore, Lawrence L.** (*with* Thomas, Emery) Group extensions and principal fibration **48** #7277

**Thomas, Emery** *See* **Larmore, Lawrence L., 48** #7277

**Zareĭua, A. V.** The resolution of a continuous mapping and the spectral sequence that connected with it. (Russian. English summary) **58** #31076

Secondary classifications:

**Golbus, Bruce F.** Singularity obstructions to immersions. (**58** #7659)

**Kruse, D. E.** (*with* McClendon, James F.) Homotopy operations under a fixed spac (**57** #7591)

**Little, Robert D.** Minimal immersions of low dimensional manifolds. (**58** #31112)

**McClendon, James F.** *See* **Kruse, D. E.,** (**57** #7591)

**Papastavridis, Stavros G.** Imbeddings, immersions, and characteristic classes of differentiable manifolds. (**58** #7649)

**Porter, Timothy** (*with* Šeda, Anthony Karel) Une application de la théorie des obstructions équivariantes à la théorie des espaces fibrés. (**50** #1238)

**Šeda, Anthony Karel** *See* **Porter, Timothy,** (**50** #1238)

## 55G37 Classification of mappings

**Hauschild, Henning** Zerspaltung äquivarianter Homotopiemengen. **58** #18451

**Lin, T. Y.** Inadequacy of ordinary homology theory. **46** #6361

**Noakes, J. L.** Power maps and principal bundles. **56** #9532

## 55G40 Sectioning fiber spaces and bundles

**Booth, Peter I.** The section problem and the lifting problem. **45** #7707

The exponential law of maps. II. **45** #7708

**Davis, Donald M.** Generalized homology and the generalized vector field problem **50** #8524

Nonexistence of axial maps. **50** #11234

**Hansen, Vagn Lundsgaard** Decomposability of evaluation fibrations and the brac product operation of James. **58** #13035

**James, Ioan M.** Which fibre spaces are decomposable? **52** #9229

Relative Stiefel manifolds. **53** #11613
**Lam, Kee Yuen** Sectioning vector bundles over real projective spaces. **45** #6024
**Little, Robert D.** Complex vector fields and divisible Chern classes. **54** #6144
**Lundell, Albert T.** Generalized $E$-invariants and the numbers of James. **51** #11508
**McClendon, James F.** Obstruction theory in fiber spaces. **45** #6002
Metric families. **52** #11913
**Peltier, Charles F.** Classifying spaces for sectioning multiples of a symplectic line bundle. **51** #9062
**Rigdon, Robert D.** On the $p$-primary obstructions to finding a cross-section. **50** #14750
**Sigrist, François** (*with* Suter, Ueli) Cross-sections of quaternionic Stiefel manifolds. **49** #3943
**Suter, Ueli** *See* **Sigrist, François**, **49** #3943
**Van Eps, John** Sectioning bundles of high filtration and immersions. **48** #1236
**Varadarajan, K.** On topological span. **47** #9623
**Yasui, Tsutomu** The enumeration of liftings in fibrations and the embedding problem. I. **53** #14492
**Yoshida, Toshio** Note on equivariant maps from spheres to Stiefel manifolds. **54** #3700

Secondary classifications:

**Mahowald, Mark E.** (*with* Rigdon, Robert D.) Obstruction theory with coefficients in a spectrum. (**58** #7630)
**McClendon, James F.** Embedding metric families. (**53** #14490)
**Moran, Daniel A.** Minimal cell coverings of some sphere bundles. (**48** #9716)
**Noakes, J. L.** Power maps and principal bundles. (**56** #9532)
**Papastavridis, Stavros G.** Imbeddings, immersions, and characteristic classes of differentiable manifolds. (**58** #7649)
**Rigdon, Robert D.** *See* **Mahowald, Mark E.**, (**58** #7630)
**Scheerer, Hans** Restklassenräume kompakter zusammenhängender Gruppen mit Schnitt. (**48** #4191)
**Sigrist, François** Détermination des groupes $J(CP^4)$ et $J(HP^2)$. Applications. (**48** #12504)

### 55G45 Postnikov systems, $k$-invariants

**Adams, John Frank** The work of H. Cartan in its relation with homotopy theory. **53** #6561
**(Cartan, H.)** *See* **Adams, John Frank**, **53** #6561
**Cooper, Benjamin G.** Doubly stable two-stage Postnikov systems. **48** #5075
**Dror, Emmanuel** Acyclic spaces. **47** #4262
**Furukawa, Yasukuni** (*with* Nomura, Yasutoshi) On the loop-order of a fibre space. **52** #9230
**Harper, John R.** (*with* Schochet, Claude) Coalgebra extensions in two-stage Postnikov systems. **46** #9985
**Hill, Richard O., Jr.** Moore-Postnikov towers for fibrations in which $\pi_1$(fiber) is non-abelian. **53** #14493
**Kraines, David** The cohomology of some $k$-stage Postnikov systems. **51** #6812
Corrigendum: "The $\mathcal{A}(p)$ cohomology of some $k$ stage Postnikov systems" (Comment. Math. Helv. **48** (1973), 56–71). **48** #9723
**McClendon, James F.** Reducing towers of principal fibrations. **51** #14053
**Nomura, Yasutoshi** *See* **Furukawa, Yasukuni**, **52** #9230
**Robinson, C. A.** Moore-Postnikov systems for non-simple fibrations. **45** #7714
**Schochet, Claude** *See* **Harper, John R.**, **46** #9985
**Williams, F. D.** Homotopy-algebraic structures. **52** #1697

Secondary classifications:

**Hill, Richard O., Jr.** On the geometric dimension of stable real vector bundles. (**49** #3935)
**Tsukiyama, Kouzou** Note on self-maps inducing the identity automorphisms of homotopy groups. (**52** #1684)

### 55G99 None of the above, but in this section

Secondary classifications:

**Kochman, Stanley O.** Homology of the classical groups over the Dyer-Lashof algebra. (**48** #9719)

## 55Hxx Spectral sequences

### 55H05 General

**Araki, Shôrô** (*with* Yosimura, Zen-ichi) A spectral sequence associated with a cohomology theory of infinite $CW$-complexes. **48** #5076
**Berikašvili, N. A.** Differentials of a spectral sequence. (Russian. English summary) **56** #1313
**Cain, Richard N.** A spectral sequence for the intersection of subspace pairs. **52** #9231
**Dennett, John Roy** The E. H. P. spectral sequence. **48** #1237
**Dyer, Micheal N.** Rational homology and Whitehead products. **46** #4534 (E **57** #7590)
**Halperin, Stephen** Finiteness in the minimal models of Sullivan. **57** #1493
**Moore, John C.** Bockstein spectral sequences, modified Bockstein spectral sequences, and Hopf algebras over certain Frobenius rings. **48** #12530
**Sáenz Lorenzo, José Félix** The spectral sequence of homology. (Spanish) **50** #3226
**Skordev, Genčo S.** Finite-sheeted coverings and the resolvent of a closed mapping. (Russian) **48** #7278
**Smirnov, Vladimir A.** The functor $D$ for twisted tensor products. (Russian) **55** #4172 (EA **55/56**)
**Ta, Man** *See* **Teleman, Kostake**, **57** #1494
**Teleman, Kostake** (*with* Ta, Man) Généralisation des suites spectrales. **57** #1494
**Yosimura, Zen-ichi** *See* **Araki, Shôrô**, **48** #5076

Secondary classifications:

**Kahn, Donald W.** Stable spectral sequences and their applications. (**46** #9974)
**Zarelua, A. V.** The resolution of a continuous mapping and the spectral sequence that is connected with it. (Russian. English summary) (**58** #31076)

### 55H10 Serre spectral sequences

**Kadeišvili, T. V.** The differentials of the spectral sequence of a twisted product. (Russian. Georgian and English summaries) **55** #6430

Secondary classifications:

**Culler, Marc** Homology equivalent finite groups are isomorphic. (**58** #5971)
**Hilton, Peter John** (*with* Roitberg, Joseph) On the Zeeman comparison theorem for the homology of quasi-nilpotent fibrations. (**55** #4153)
**Legrand, André** Sur les groupes d'homotopie des sections continues d'une fibration en groupes. (English summary) (**58** #18448)
**Roitberg, Joseph** *See* **Hilton, Peter John**, (**55** #4153)
**Uehara, Hiroshi** Algebraic Steenrod operations in the spectral sequence associated with a pair of Hopf algebras. (**50** #10021)

### 55H15 Adams spectral sequences

**Aubry, Marc** Calculs de groupes d'homotopie stables mod $p$ par la suite spectrale d'Adams. (English summary) **55** #6431
**Baas, Nils Andreas** On the convergence of the Adams spectral sequences. **47** #2603
**Bousfield, A. K.** (*with* Kan, Daniel M.) Homotopy with respect to a ring. **48** #5077
(*with* Kan, Daniel M.) A second quadrant homotopy spectral sequence. **51** #9063
(*with* Kan, Daniel M.) Pairings and products in the homotopy spectral sequence. **51** #9064
**Curtis, Edward B.** The Dyer-Lashof algebra and the $\Lambda$-algebra. **51** #14054
**Davis, Donald M.** (*with* Snaith, Victor P.) Massey products and $H$ $(p,q)$-systems. **48** #7279
The cohomology of the spectrum $bJ$. **57** #7601
**Hastings, Harold M.** Simplicial topological resolutions. **51** #11509a (E **51** #11509b)
Correction to: "Simplicial topological resolutions" (Proceedings of the Thirteenth Biennial Seminar of the Canadian Mathematical Congress, Dalhousie Univ., Halifax, N.S., 1971) Vol. 2, pp. 66–77. Canad. Math. Congr., Montreal, Que. 1972). **51** #11509b
**Kan, Daniel M.** *See* **Bousfield, A. K.**, **48** #5077; **Bousfield, A. K.**, **51** #9063 *and* **Bousfield, A. K.**, **51** #9064
**Krueger, Warren M.** Generalized Steenrod-Hopf invariants for stable homotopy theory. **52** #6719
Peterson-Stein formulas in the Adams spectral sequence. **53** #4064
Hopf invariants and Browder's work on the Kervaire invariant problem. **55** #4173
**Mäkinen, Jukka** Boundary formulae for reduced powers in the Adams spectral sequence. **51** #11510
**Miller, Haynes R.** A localization theorem in homological algebra. **58** #13036
**Ming, Ronald** Yoneda products in the Cartan-Eilenberg change of rings spectral sequence with applications to $BP_*(BO(n))$. **53** #11614
**Nakamura, Osamu** On the squaring operations in the May spectral sequence. **54** #1224
On the cohomology of the mod 2 Steenrod algebra. **52** #4289
(*with* Oka, Shichirô) Some differentials in the mod $p$ Adams spectral sequence $(p \geqslant 5)$. **58** #13037a
(*with* Oka, Shichirô) Corrections to: "Some differentials in the mod $p$ Adams spectral sequence $(p \geqslant 5)$". **58** #13037b
**Oka, Shichirô** *See* **Nakamura, Osamu**, **58** #13037a *and* **Nakamura, Osamu**, **58** #13037b
**Puppe, Volker** Über Konvergenz von Spektralfolgen der stabilen Homotopietheorie. (English summary) **46** #9986
**Robinson, C. A.** Stable homotopy theory over a fixed base space. **51** #6813
**Singer, William M.** The algebraic EHP sequence. **52** #6720
Iterated loop functors and the homology of the Steenrod algebra. **57** #17644
**Snaith, Victor P.** *See* **Davis, Donald M.**, **48** #7279
**Zahler, Raphael S.** The Adam-Novikov spectral sequence for the spheres. **45** #9332
The Adams-Novikov spectral sequence for the spheres. **47** #7742

Secondary classifications:

**Davis, Donald M.** The BP-coaction for projective spaces. (**57** #17640)
**Lin, T. Y.** Adams type spectral sequences and stable homotopy modules. (**52** #11908)
**Mahowald, Mark E.** On the double suspension homomorphism. (**55** #11248)
**Milgram, R. James** Group representations and the Adams spectral sequence. (**46** #3598)
**Miller, Haynes R.** (*with* Ravenel, Douglas C.; Wilson, W. Stephen) Periodic phenomena in the Adams-Novikov spectral sequence. (**56** #16626)
(*with* Ravenel, Douglas C.) Morava stabilizer algebras and the localization of Novikov's $E_2$-term. (**56** #16613)
**Ravenel, Douglas C.** *See* **Miller, Haynes R.**, (**56** #16613) *and* **Miller, Haynes R.; et al.**, (**56** #16626)
**Wilson, W. Stephen** *See* **Miller, Haynes R.; et al.**, (**56** #16626)
**Zahler, Raphael S.** The Adams-Novikov spectral sequence for the spheres. (**49** #3927)

### 55H20 Eilenberg-Moore spectral sequences

**Anderson, Donald W.** A generalization of the Eilenberg-Moore spectral sequence. **46** #9987
**Dwyer, William G.** Strong convergence of the Eilenberg-Moore spectral sequence. **52** #15464

Exotic convergence of the Eilenberg-Moore spectral sequence. **52** #4290

**Halperin, Stephen** *See* **Stasheff, James Dillon, 49** #3944

**Heller, Alex** Abstract homotopy in categories of fibrations and the spectral sequence of Eilenberg and Moore. **46** #9988

**Hodgkin, Luke** The equivariant Künneth theorem in *K*-theorem. **57** #17645

**Husemoller, Dale** (*with* Moore, John C.; Stasheff, James Dillon) Differential homological algebra and homogeneous spaces. **51** #1823

**Kraines, David** (*with* Schochet, Claude) Differentials in the Eilenberg-Moore spectral sequence. **45** #9331

The kernel of the loop suspension map. **54** #11334

**Ligaard, Hans** (*with* Madsen, Ib) Homology operations in the Eilenberg-Moore spectral sequence. **51** #11511

**Madsen, Ib** *See* **Ligaard, Hans, 51** #11511

**May, J. Peter** (*with* Zabrodsky, Alexander) $H^*\mathrm{spin}(n)$ as a Hopf algebra. **56** #13220

**Moore, John C.** *See* **Husemoller, Dale; et al., 51** #1823

**Munkholm, Hans J.** A collapse result for the Eilenberg-Moore spectral sequence. **47** #1055

The Eilenberg-Moore spectral sequence and strongly homotopy multiplicative maps. **50** #3227

shm maps of differential algebras. II. Applications to spaces with polynomial cohomology. **55** #11247b

**Sáenz, J. F.** ★El functor Tor y la sucesion espectral de Eilenberg-Moore. (Spanish) [The Tor functor and the Eilenberg-Moore spectral sequence] **50** #3228

The functor Tor and the Eilenberg-Moore spectral sequence. (Spanish. English summary) **49** #8016

**Schochet, Claude** A two-stage Postnikov system where $E_2 \neq E_\infty$ in the Eilenberg-Moore spectral sequence. **46** #6362

*See also* **Kraines, David, 45** #9331

**Seymour, R. M.** On the convergence of the Eilenberg-Moore spectral sequence. **57** #17646

**Smith, Larry** On the Eilenberg-Moore spectral sequence. **48** #3052

**Stasheff, James Dillon** (*with* Halperin, Stephen) Differential algebra in its own rite. **49** #3944

*See also* **Husemoller, Dale; et al., 51** #1823

**Vick, James W.** Some applications of the Rothenberg-Steenrod spectral sequence. **49** #11512

**Zabrodsky, Alexander** *See* **May, J. Peter, 56** #13220

Secondary classifications:

**Dwyer, William G.** Vanishing homology over nilpotent groups. (**51** #10442)

**Gugenheim, V. K. A. M.** (*with* May, J. Peter) ★On the theory and applications of differential torsion products. (**52** #15519)

**Kamber, Franz W.** (*with* Tondeur, Philippe) Classes caractéristiques et suites spectrales d'Eilenberg-Moore. (English summary) (**55** #4203)

**Kono, Akira** (*with* Mimura, Mamoru) Cohomology mod 2 of the classifying space of $\mathrm{PSp}(4n+2)$. (**56** #6658)

(*with* Mimura, Mamoru; Shimada, Nobuo) On the cohomology mod 2 of the classifying space of the 1 connected exceptional Lie group $E_7$. (**54** #3732)

**May, J. Peter** *See* **Gugenheim, V. K. A. M.**, (**52** #15519)

**Mimura, Mamoru** (*with* Mori, Masamitsu) The squaring operations in the Eilenberg-Moore spectral sequence and the classifying space of an associative *H*-space. I. (**57** #13944)

*See also* **Kono, Akira; et al.**, (**54** #3732) *and* **Kono, Akira**, (**56** #6658)

**Mori, Masamitsu** A note on Steenrod operations in the Eilenberg-Moore spectral sequence. (**58** #18450)

*See also* **Mimura, Mamoru**, (**57** #13944)

**Shar, Albert O.** Localizations and the homotopy groups of certain complexes. (**58** #31069)

**Shimada, Nobuo** *See* **Kono, Akira; et al.**, (**54** #3732)

**Tondeur, Philippe** *See* **Kamber, Franz W.**, (**55** #4203)

**Wolf, Joel** The cohomology of homogeneous spaces. (**55** #11284)

### 55H25 Generalized cohomology

**Hilton, Peter John** ★Suites spectrales et théories de cohomologie générales. **51** #1824

**Jankovski, A.** Elements of infinite filtration in generalized cohomology theories on a category of spectra. (Russian) **46** #893

**Lozano, M. T.** The Fáry spectral sequence in *K*-theory. (Spanish. English summary) **57** #17647

**Morisugi, Kaoru** On the group $\mathrm{Ext}^1_{A_{\mathrm{BP}}{}^*}(\mathrm{BP}^*(S^0), \mathrm{BP}(S^0))$ and the Hurewicz image of $\mathrm{BP}/S^0$. **54** #3701

**Siegel, Jerrold** On the construction of the Bockstein spectral sequence. **52** #15465

Secondary classifications:

**Held, René P.** (*with* Suter, Ueli) Die Bestimmung der unitären *K*-Theorie von $\mathrm{SO}(n)$ mit Hilfe der Atiyah-Hirzebruch-Spektralreihe. (**45** #1191)

**Knapp, Karlheinz** Rank and Adams filtration of a Lie group. (**57** #10703)

**Kochman, Stanley O.** A chain functor for bordism. (**58** #7607)

**Meier, Willi** ★Phantomabbildungen und klassifizierende Räume. (**54** #1213)

**Minami, Haruo** *K*-groups of symmetric spaces. I. (**54** #3727a)

*K*-groups of symmetric spaces. II. (**54** #3727b)

**Stieglitz, Andreas** Eine Spektralsequenz in der stetigen Kohomologietheorie topologischer Gruppen. (English summary) (**51** #14127)

**Suter, Ueli** *See* **Held, René P.**, (**45** #1191)

**Yosimura, Zen-ichi** On cohomology theories of infinite CW-complexes. I. (**50** #5784)

### 55H99 None of the above, but in this section

**Buhštaber, V. M.** Modules of differentials of the Atiyah-Hirzebruch spectral sequence. II. (Russian) **45** #9330

**Grivel, Pierre Paul** La suite spectrale d'une fibration de Kan. (English summary) **53** #14494

**Zarelua, A. V.** A spectral sequence that is connected with a continuous mapping. (Russian) **58** #13038

Secondary classifications:

**Allday, Christopher** Rational Whitehead products and a spectral sequence of Quillen. II. (**57** #13935)

**Bousfield, A. K.** (*with* Kan, Daniel M.) The core of a ring. (**46** #7222 (E **48** #6085))

**Kan, Daniel M.** *See* **Bousfield, A. K.**, (**46** #7222 (E **48** #6085))

**de Vries, Jan** Pseudocompactness and the Stone-Čech compactification for topological groups. (**53** #5801)

## 55Jxx Applied homological algebra [See also 18Gxx.]

### 55J05 Abstract complexes

**Bartík, V.** A general covering theorem for continuous functions. (Russian) **52** #11914

**Bousfield, A. K.** (*with* Kan, Daniel M.) ★Homotopy limits, completions and localizations. **51** #1825

**Hilton, Peter John** (*with* Mislin, Guido; Roitberg, Joseph) Topological localization and nilpotent groups. **47** #1066

**Kan, Daniel M.** *See* **Bousfield, A. K., 51** #1825

**Mislin, Guido** *See* **Hilton, Peter John; et al., 47** #1066

**Roitberg, Joseph** *See* **Hilton, Peter John; et al., 47** #1066

Secondary classifications:

**Drachman, Byron** A note on principal constructions. (**47** #1919)

**Kuz'minov, V. I.** (*with* Švedov, I. A.) Quasiexact sequences of complexes, and hyperhomology. (Russian) (**49** #7335)

**Stanley, Richard P.** Cohen-Macaulay complexes. (**58** #28010)

**Švedov, I. A.** *See* **Kuz'minov, V. I.**, (**49** #7335)

### 55J10 Semisimplicial complexes

**Balcerzyk, Stanisław** On the Kan extension conditions. (Russian summary) **56** #3840

**Berikašvili, N. A.** A homology theory of spaces. (Russian. Georgian and English summaries) **57** #13949

**Bognár, Mátyás** On the triangulability of CW-complexes. (Hungarian. English summary) **46** #4535

**Bousfield, A. K.** Constructions of factorization systems in categories. **57** #17648

**Del Fra, Alberto** Sul calcolo diretto dell'anello di coomologia. (French summary) **47** #1056

**Dror, Emmanuel** (*with* Dwyer, William G.) A Whitehead theorem for long towers of spaces. **58** #18452

**Dwyer, William G.** *See* **Dror, Emmanuel, 58** #18452

**Fritsch, Rudolf** Simpliziale und semisimpliziale Mengen. (English and Russian summaries) **46** #8232

An approximation theorem for maps into Kan fibrations. **55** #13425

**Lee, Ming Jung** Homotopy for functors. **48** #12531

**Matuzevičius, A.** The category of triples and the generalized Puppe sequence. (Russian. Lithuanian and English summaries) **58** #13039

**Porter, Timothy** Le produit des espaces compacts dans la catégorie Vtop. **49** #3945

**Ruiz, Roberto** *See* **Ruiz Salguero, Carlos, 58** #31077

**Ruiz Salguero, Carlos** (*with* Ruiz, Roberto) Kan fibrations which are homomorphisms of simplicial groups. **58** #31077

**Schlomiuk, Norbert H.** $\mu$-homotopic maps are loop homotopic. **47** #5875

**Van Osdol, Donovan H.** Simplicial homotopy in an exact category. **57** #17649

**Watkiss, C.** The nilpotent model for a function space. **57** #10705

**Watremez, Michel** Produits tordus linéaires et produits tordus normalisés. **53** #4065

**Wu, Wên Chün** Theory of $I^*$-functor in algebraic topology—real topology of fiber squares. **58** #31078

Theory of $I^*$-functor in algebraic topology. Effective calculation and axiomatization of $I^*$-functor on complexes. **58** #31079

**Zisman, Michel** Un théorème sur les sommes amalgamées de groupes simpliciaux. (English summary) **57** #13950

Secondary classifications:

**Alder, Michael D.** Inverse limits of simplicial complexes. (**50** #8541)

**Allday, Christopher** Rational Whitehead products and a spectral sequence of Quillen. II. (**57** #13935)

**Balcerzyk, Stanisław** (*with* Chan, Phan Huu; Kiełpiński, Roman) On three types of simplicial objects. (**55** #461)

**Barratt, Michael** A free group functor for stable homotopy. (**48** #3043)

**Chan, Phan Huu** *See* **Balcerzyk, Stanisław; et al.**, (**55** #461)

**Clark, W. Edwin** Cohomology of semigroups via topology–with an application to semigroup algebras. (**54** #2764)

**Deleanu, Aristide** Existence of the Adams completion for CW -complexes. (**50** #5781)

**Gugenheim, V. K. A. M.** On the multiplicative structure of the de Rham cohomology of induced fibrations. (**58** #18515)

**Hoff, Georges** Categorical homotopy. (**58** #28139)

**Husch, L. S.** Local algebraic invariants of $\Delta$-sets. (**46** #917)

**Kiełpiński, Roman** *See* **Balcerzyk, Stanisław; et al.**, (**55** #461)

**Ruiz, Roberto** *See* **Ruiz Salguero, Carlos**, (**56** #5687)

**Ruiz Salguero, Carlos** (*with* Ruiz, Roberto) Any equivalence relation over a category is a simplicial homotopy. (**56** #5687)

**Sanderson, Brian J.** The simplicial extension theorem. (**51** #4259)

**Spencer, Christopher B.** A 2-category of quasi-topological spaces. (**49** #9840)

### 55J15 Chain complexes

**Baues, Hans Joachim** (*with* Lemaire, Jean-Marie) Minimal models in homotopy theory. **55** #4174
**Brown, Ronald** (*with* Higgins, Philip J.) Sur les complexes croisés, $\omega$-groupoïdes, et $T$-complexes. (English summary) **58** #18453
**Grivel, Pierre Paul** Suite spectrale d'une fibration. **57** #4170
**Higgins, Philip J.** *See* **Brown, Ronald**, **58** #18453
**Jansen, A. V.** Chain complexes from $g$-functions. **55** #1356
**Kumar, Kiran** Homotopy and tensor product. **55** #13426
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**Wang, Qi Ming** *See* **Wu, Wên Chün**, **58** #24268
**Wu, Wên Chün** (*with* Wang, Qi Ming) Theory of $I^*$-functor in algebraic topology. $I^*$-functor of a fiber space. **58** #24268

Secondary classifications:

**Lemaire, Jean-Michel** "Autopsie d'un meurtre" dans l'homologie d'une algèbre de chaînes. (English summary) (**58** #18423)
**Mertens, Jens-Uwe** Exakte Paare und Kettenkomplexe. (**48** #3038)
**Porter, Timothy** Coherent prohomotopical algebra. (**57** #9804)
**Swan, Richard G.** Thom's theory of differential forms on simplicial sets. (**52** #4327)

### 55J20 Universal coefficient theorems, Bockstein operator

**Deleanu, Aristide** *See* **Hilton, Peter John**, **48** #12532
**Dinh The Luc** One remark on the realizability of singular cohomology groups. **58** #18454
**Hilton, Peter John** (*with* Deleanu, Aristide) On the splitting of universal coefficient sequences. **48** #12532
**Kainen, Paul C.** Universal coefficient theorems for generalized homology and stable cohomotopy. **47** #7743
**Ruiz Salguero, Carlos** ★Cohomologie à coefficients dans un presque-groupe simplicial et $K$-théorie algébrique. **56** #3841
**Sigmon, Kermit** A universal construction of universal coefficient sequences. **58** #18455

### 55J25 Homology of a product, Künneth formula

**Katz, Elyahu** A Künneth formula for coproducts of simplicial groups. **56** #3842
**Patty, C. W.** Homology of deleted product spaces. **47** #2604
**Roux, André** Application de la suite spectrale d'Hodgkin au calcul de la $K$-théorie des variétés de Stiefel. **47** #1057
**Sigmon, Kermit** A simple proof of the Künneth theorem for Alexander cohomology. **51** #4250
**Snaith, Victor P.** On the Kunneth formula spectral sequence in equivariant $K$-theory. **46** #8226

### 55J30 Duality

Secondary classifications:

**Bieri, Robert** Normal subgroups in duality groups and in groups of cohomological dimension 2. (**52** #10904)

### 55J99 None of the above, but in this section

**Brown, Ronald** (*with* Spencer, Christopher B.) Double groupoids and crossed modules. **55** #13427 (E **57** #4171)
(*with* Spencer, Christopher B.) Erratum à l'article: "Double groupoids and crossed modules" (Cahiers Topologie Géom. Differentielle **17** (1976), no. 4, 343–362). **57** #4171
**Deleanu, Aristide** (*with* Hilton, Peter John) Note on homology and cohomology with $\mathbf{Z}_p$-coefficients. **58** #13040
**Hilton, Peter John** *See* **Deleanu, Aristide**, **58** #13040
**Spencer, Christopher B.** *See* **Brown, Ronald**, **55** #13427 (E **57** #4171) *and* **Brown, Ronald**, **57** #4171

Secondary classifications:

**Atiyah, M. F.** (*with* Segal, Graeme B.) Exponential isomorphisms for $\lambda$-rings. (**45** #344)
**Bauer, Friedrich-Wilhelm** Homology and semi-functors. (**45** #333)
**Brown, Kenneth S.** (*with* Dror, Emmanuel) The Artin-Rees property and homology. (**52** #10809)
**Chislett, E.** (*with* Hoo, Cheong S.) Coretraction-fibrations are retractions. (**45** #3518)
**Deleanu, Aristide** (*with* Hilton, Peter John) Remark on Čech extensions of cohomology functors. (**49** #11499)
**Dror, Emmanuel** *See* **Brown, Kenneth S.**, (**52** #10809)
**Dyer, Micheal N.** Projective $k$-invariants. (**54** #3691)
**Edwards, David A.** (*with* Hastings, Harold M.) On topological methods in homological algebra. (**54** #12864)
**Hastings, Harold M.** *See* **Edwards, David A.**, (**54** #12864)
**Hilton, Peter John** *See* **Deleanu, Aristide**, (**49** #11499)
**Hoo, Cheong S.** *See* **Chislett, E.**, (**45** #3518)
**Kahn, Donald W.** Obstruction theory in the stable range. (**49** #11511)
**Moore, John C.** What it means for a coalgebra to be simply connected. (**54** #3733)
**Nienhuys-Cheng, S. H.** Weak homotopy category of a category with a cotriple. (**45** #349)
**Radu, Alexandru Gh.** Covering and bicovering morphisms in additive topology. V. (Romanian. French summary) (**45** #337)
Sheaf category in multiplicative additive topology. VI. (Romanian. French summary) (**45** #338)
Morphisms and comorphisms of preadditive sites. VIII. (Romanian. French summary) (**45** #340)
**Segal, Graeme B.** *See* **Atiyah, M. F.**, (**45** #344)

## 57–XX MANIFOLDS AND CELL COMPLEXES [For complex manifolds, see 32C10.]

**Koschorke, Ulrich** Framefields and nondegenerate singularities. **50** #5814

Secondary classifications:

**Vauthier, Jacques** Diffusion sur une variété riemannienne complète à courbure négative. (**46** #8319)

### 57–01 Elementary exposition (collegiate level)

**Černavskiĭ, A. V.** (*with* Matveev, S. V.) ★Основы топологии многообразй. (Russian) [Foundations of the topology of manifolds] **57** #17650
*See also* **Efremovič, V. A.**, **58** #13041
**Efremovič, V. A.** (*with* Černavskiĭ, A. V.) ★Элементы топологии. (Russian) [Elements of topology] **58** #13041
**Fuks, D. B.** *See* **Rohlin, V. A.**, **58** #31080
**Gramain, André** ★Topologie des surfaces. **45** #1181
**Matveev, S. V.** *See* **Černavskiĭ, A. V.**, **57** #17650
**Milnor, John W.** (*with* Stasheff, James Dillon) ★Characteristic classes. **55** #13428
**Moise, Edwin E.** ★Geometric topology in dimensions 2 and 3. **58** #7631
**Pontrjagin, L. S.** ★Основы комбинаторной топологии. (Russian) [Foundations of combinatorial topology] **57** #7602
**Rohlin, V. A.** (*with* Fuks, D. B.) ★Начальный курс топологии: геометрические главы. (Russian) [A beginning course in topology: geometrical chapters] **58** #31080
**Stasheff, James Dillon** *See* **Milnor, John W.**, **55** #13428
**Temple, George** Noah's theorem. (Bulgarian) **58** #31081
**Vrabec, Jože** Surfaces. (Slovenian. English summary) **58** #13042
**Wallace, Andrew H.** ★Differential topology: first steps. **55** #9098

Secondary classifications:

**Atiyah, M. F.** Bakerian Lecture, 1975. Global geometry. (**57** #2794)
**Auslander, Louis** (*with* MacKenzie, Robert E.) ★Introduction to differentiable manifolds. (**57** #10717)
**Berger, Marcel** (*with* Gostiaux, Bernard) ★Géométrie différentielle. (**58** #13102)
**Białynicki-Birula, Andrzej** (*with* Pełczyński, A.) Apropos K. Sieklucki's article "On geometry and topology" (Wiadom. Mat. **15**, 17–24 (1972)). (Polish) (**58** #4890)
**Duda, Roman** The Poincaré conjecture. (Polish) (**58** #31043)
**Gauld, David B.** Topological properties of manifolds. (**50** #8397)
**Godbillon, Claude** ★Éléments de topologie algébrique. (**46** #880)
**Gostiaux, Bernard** *See* **Berger, Marcel**, (**58** #13102)
**Guillemin, V.** (*with* Pollack, Alan) ★Differential topology. (**50** #1276)
**Macbeath, A. M.** Topological background. (**57** #13909)
**MacKenzie, Robert E.** *See* **Auslander, Louis**, (**57** #10717)
**Pełczyński, A.** *See* **Białynicki-Birula, Andrzej**, (**58** #4890)
**Pollack, Alan** *See* **Guillemin, V.**, (**50** #1276)
**Sieklucki, Karol** On geometry and topology. (Polish) (**58** #10135)
*See also* **Białynicki-Birula, Andrzej; et al.**, (**58** #4890)
**Zalgaller, V. A.** ★Теория огибающих. (Russian) [Theory of envelopes] (**52** #15252)

### 57–02 Advanced exposition (research surveys, etc.)

**(Atiyah, M. F.)** *See* **Kirby, Robion C.; et al.**, **58** #31082
**(Buhštaber, V. M.)** *See* **Stong, Robert E.**, **49** #11513
**Cannon, James W.** The recognition problem: what is a topological manifold? **58** #13043
**Horvatić, Krešo** On piecewise linear topology. (Serbo-Croatian. English summary) **45** #2714
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**Kirby, Robion C.** (*with* Siebenmann, Laurence C.) ★Foundational essays on topological manifolds, smoothings, and triangulations. **58** #31082
**Lashof, Richard** The tangent bundle of a topological manifold. **47** #2605
**Lees, J. Alexander** ★Notes on bundle theory. **50** #11235
**(Milnor, John W.)** *See* **Kirby, Robion C.; et al.**, **58** #31082
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**Schultz, Reinhard** Some recent results on topological manifolds. **45** #6015
**Siebenmann, Laurence C.** Topological manifolds. **54** #11335
*See also* **Kirby, Robion C.**, **58** #31082
**Stong, Robert E.** ★Заметки по теории кобордизмов. (Russian) [Notes on cobordism theory] **49** #11513
**Sullivan, Dennis** Inside and outside manifolds. **54** #13915
**Problems:**
**Topology** Some problems in topology. **57** #4172
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**Santaló, Luis A.** Some problems of differential geometry. (Spanish) (**54** #1093)

### 57–03 Historical

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**(Ackerman, Michael)** *See* **Sophus Lie's 1880 transformation group paper**, (**57** #49)
**Atiyah, M. F.** On the work of Serge Novikov. (**54** #2383)

**(Brouwer, L. E. J.)** *See* **Thom, René**, (**46** #10002)
**Fuks, D. B.** *See* **Gindikin, S. G.; et al.**, (**52** #7826)
**(Gel′fand, I. M.)** *See* **Gindikin, S. G.; et al.**, (**52** #7826)
**Gindikin, S. G.** (*with* Kirillov, A. A.; Fuks, D. B.) Work of I. M. Gel′fand in functional analysis, algebra and topology. (Russian) (**52** #7826)
**(Hermann, Robert)** *See* **Sophus Lie's 1880 transformation group paper**, (**57** #49)
**Hilton, Peter John** Heinz Hopf. (**52** #5300)
**(Hopf, Heinz)** *See* **Hilton, Peter John**, (**52** #5300)
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**(Novikov, S. P.)** *See* **Atiyah, M. F.**, (**54** #2383)
**Thom, René** Le degré Brouwerien en topologie différentielle moderne. "Brouwer Memorial Lecture" donnée le 25e août 1970 à Amsterdam. (**46** #10002)
**Vidal, Enrique** Evolution of differential geometry and differential topology. (Spanish) (**58** #15998)
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**Sophus Lie's 1880 transformation group paper** ★Sophus Lie's 1880 transformation group paper. (**57** #49)
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## 57–06 Collections of papers; proceedings of conferences

**(Anderson, R. D.)** *See* **Symposium: Infinite-Dimensional Topology**, **49** #11514
**(Cerf, J.)** *See* **Colloque: Analyse et la Topologie Différentielle**, **48** #9724
**(Fox, Ralph Hartzler)** *See* **Knots, groups, and 3-manifolds**, **51** #4251
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**(Mann, L. N.)** *See* **Proceedings: Conference on Compact Transformation Groups**, **48** #7281 *and* **Proceedings: Conference on Compact Transformation Groups**, **48** #7282
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**(Neuwirth, Lee P.)** *See* **Knots, groups, and 3-manifolds**, **51** #4251
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**Colloques Internationaux du Centre National de la Recherche Scientifique** *See* **Colloque: Analyse et la Topologie Différentielle**, **48** #9724
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**Geometry of manifolds** ★Geometry of manifolds. **48** #7280
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**Imbeddings of surfaces** *See* **Theory of imbeddings of surfaces and related topics**, **58** #31085
**Infinite-dimensional topology** *See* **Symposium: Infinite-Dimensional Topology**, **49** #11514
**Itogi Nauki i Tehniki** *See* **Current problems in mathematics**, **58** #18456
**Knot theory** ★Knot theory. **58** #31084
**Knots, groups, and 3-manifolds** ★Knots, groups, and 3-manifolds. **51** #4251
**Manifolds** ★Manifolds—Tokyo 1973. **50** #11236
*See also* **Geometry of manifolds**, **48** #7280; **Conference: Manifolds and Related Topics in Topology**, **48** #7283; **Knots, groups, and 3-manifolds**, **51** #4251; **Topological questions in lower dimensions on a manifold**, **58** #31086 *and* **Topology of manifolds with group actions**, **58** #31090
**Math Lecture Notes from Topology Year** ★Math Lecture Notes from Topology Year. **52** #6721 (EA **54**)
**Plans-sur-Bex** *See* **Knot theory**, **58** #31084
**Proceedings:**
**Conference on Compact Transformation Groups** ★Proceedings of the Second Conference on Compact Transformation Groups. Part I. **48** #7281
★Proceedings of the Second Conference on Compact Transformation Groups. Part II. **48** #7282
**Research on 3- and 4-dimensional geometric topology** ★Research on 3- and 4-dimensional geometric topology. (Japanese) **58** #31087
**Rio de Janeiro** *See* **Differential topology, foliations and Gel′fand-Fuks cohomology**, **58** #13044
**Seminar:**
**Knot Theory** *See* **Knot theory**, **58** #31084
**Studies in topology** ★Исследования по топологии. (Russian) [Studies in topology] **48** #9725
★Исследования по топологии. II. (Russian) [Studies in topology. II] **55** #9097
**Symposium:**
**Differential Topology, Foliations and Gel′fand-Fuks Cohomology** *See* **Differential topology, foliations and Gel′fand-Fuks cohomology**, **58** #13044
**Foliations and $C^\infty$-mappings** *See* **Foliations and $C^\infty$-mappings**, **58** #31083
**Infinite-Dimensional Topology** ★Symposium on Infinite-Dimensional Topology (Louisiana State University, Baton Rouge, La., March 27–April 1, 1967). **49** #11514
**Research on 3- and 4-dimensional Geometric Topologies** *See* **Research on 3- and 4-dimensional geometric topology**, **58** #31087
**RIMS, Geometry of Manifolds** *See* **Geometry of manifolds**, **48** #7280
**Theory of Cobordism** *See* **Theory of cobordism**, **58** #31088
**Theory of Imbeddings of Surfaces and Related Topics** *See* **Theory of imbeddings of surfaces and related topics**, **58** #31085
**Topological Questions in Lower Dimensions on a Manifold** *See* **Topological questions in lower dimensions on a manifold**, **58** #31086
**Topology of $C^\infty$-mappings** *See* **Topology of $C^\infty$-mappings**, **58** #31089
**Topology of Manifolds with Group Actions** *See* **Topology of manifolds with group actions**, **58** #31090
**Transformation Groups and Cohomology Theory** *See* **Transformation groups and cohomology theory**, **58** #31091
**Theory of cobordism** ★Theory of cobordism. (Japanese) **58** #31088
**Theory of imbeddings of surfaces and related topics** ★Theory of imbeddings of surfaces and related topics. (Japanese) **58** #31085
**Topological questions in lower dimensions on a manifold** ★Topological questions in lower dimensions of a manifold. (Japanese) **58** #31086
**Topology** *See* **Conference: Manifolds and Related Topics in Topology**, **48** #7283; **Studies in topology**, **48** #9725; **Manifolds—**, **50** #11236; **Math Lecture Notes from Topology Year**, **52** #6721 (EA **54**) ; **Studies in topology**, **55** #9097 *and* **Differential topology, foliations and Gel′fand-Fuks cohomology**, **58** #13044
**Topology of $C^\infty$-mappings** ★Topology of $C^\infty$-mappings. (Japanese) **58** #31089
**Topology of manifolds with group actions** ★Topology of manifolds with group actions. (Japanese) **58** #31090
**Transformation groups** ★Transformation groups. **57** #7603
*See also* **Proceedings: Conference on Compact Transformation Groups**, **48** #7282
**Transformation groups and cohomology theory** ★Transformation groups and cohomology theory. (Japanese) **58** #31091

Secondary classifications:

**(Beck, Anatole)** *See* **Recent advances in topological dynamics**, (**51** #6880)
**(Boothby, William M.)** *See* **Symmetric spaces**, (**53** #687)
**(Burlet, Oscar)** *See* **Singularités d'applications différentiables**, (**55** #11287)
**(do Carmo, Manfredo Perdigão)** *See* **Geometry and topology**, (**56** #11)
**(Császár, Ákos)** *See* **Topics in topology**, (**49** #3802)
**(Gitler, Samuel)** *See* **Lectures: Algebraic and differential topology**, (**49** #6216)
**(Green, John William)** *See* **Proceedings: University of Oklahoma Topology Conference**, (**49** #6114)
**(Hedlund, Gustav Arnold)** *See* **Recent advances in topological dynamics**, (**51** #6880)
**(Hopf, Heinz)** *See* **Lectures: Algebraic and differential topology**, (**49** #6216)
**(Kay, David C.)** *See* **Proceedings: University of Oklahoma Topology Conference**, (**49** #6114)
**(McAuley, Louis F.)** *See* **Algebraic and geometrical methods in topology**, (**50** #8492)
**(Millett, Kenneth C.)** *See* **Algebraic and geometric topology**, (**58** #24239)
**(Mitropol′s′kiĭ, Ju. O.)** *See* **School: Mathematical**, (**56** #15261)
**(Moore, Robert Lee)** *See* **Proceedings: University of Oklahoma Topology Conference**, (**49** #6114)

(**Palis, Jacob, Jr.**) *See* **Geometry and topology**, (**56** #11)
(**Ronga, Felice**) *See* **Singularités d'applications différentiables**, (**55** #11287)
(**Rubin, Leonard R.**) *See* **Proceedings: University of Oklahoma Topology Conference**, (**49** #6114)
(**Šestopal, A. F.**) *See* **School: Mathematical**, (**56** #15261)
(**Su, Li Pi**) *See* **Proceedings: University of Oklahoma Topology Conference**, (**49** #6114)
(**Vanstone, J. R.**) *See* **Proceedings: Biennial Seminar of the Canadian Mathematical Congress**, (**50** #4191) *and* **Proceedings: Biennial Seminar of the Canadian Mathematical Congress**, (**50** #4192)
(**Weiss, Guido**) *See* **Symmetric spaces**, (**53** #687)
(**Wilder, Raymond Louis**) *See* **Algebraic and geometric topology**, (**58** #24239)
**Algebraic and geometric topology** ★Algebraic and geometric topology. (**58** #24239)
**Algebraic and geometrical methods in topology** ★Algebraic and geometrical methods in topology. (**50** #8492)
**Algebraic topology** *See* **Lectures: Algebraic and differential topology**, (**49** #6216) *and* **Algebraic and geometrical methods in topology**, (**50** #8492)
**Centro Internazionale Mathematico Estivo (C.I.M.E.)** *See* **Differential operators on manifolds**, (**58** #18514)
**Colloquia Mathematica Societatis János Bolyai** *See* **Topics in topology**, (**49** #3802)
**Colloquium:**
  **Topology** *See* **Topics in topology**, (**49** #3802)
**Conference:**
  **Topological Dynamics** *See* **Recent advances in topological dynamics**, (**51** #6880)
  **Topological Methods in Algebraic Topology** *See* **Algebraic and geometrical methods in topology**, (**50** #8492)
  **University of Oklahoma, Topology** *See* **Proceedings: University of Oklahoma Topology Conference**, (**49** #6114)
**Differential geometry** *See* **Proceedings: Biennial Seminar of the Canadian Mathematical Congress**, (**50** #4191) *and* **Proceedings: Biennial Seminar of the Canadian Mathematical Congress**, (**50** #4192)
**Differential operators on manifolds** ★Differential operators on manifolds. (**58** #18514)
**Differential topology** *See* **Lectures: Algebraic and differential topology**, (**49** #6216); **Proceedings: Biennial Seminar of the Canadian Mathematical Congress**, (**50** #4191) *and* **Proceedings: Biennial Seminar of the Canadian Mathematical Congress**, (**50** #4192)
**Geometry and topology** ★Geometry and topology. (**56** #11)
**Hypersurfaces** *See* **Singularities of hypersurfaces**, (**58** #27954)
**Kaciveli** *See* **School: Mathematical**, (**56** #15261)
**Lecture notes from the Taniguchi International Symposium** ★Lecture notes from the Taniguchi International Symposium. (Japanese) (**58** #15773)
**Lectures:**
  **Algebraic and differential topology** ★Lectures on algebraic and differential topology. (**49** #6216)
**Nalchik** *See* **School: Mathematical**, (**56** #15261)
**Proceedings:**
  **Biennial Seminar of the Canadian Mathematical Congress** ★Proceedings of the Thirteenth Biennial Seminar of the Canadian Mathematical Congress, Vol. I. (**50** #4191)
    ★Proceedings of the Thirteenth Biennial Seminar of the Canadian Mathematical Congress. Vol. 2. (**50** #4192)
  **University of Oklahoma Topology Conference** ★Proceedings of the University of Oklahoma Topology Conference (March 23–25, 1972). (**49** #6114)
**Recent advances in topological dynamics** ★Recent advances in topological dynamics. (**51** #6880)
**Rio de Janeiro** *See* **Geometry and topology**, (**56** #11)
**Santa Barbara, Calif.** *See* **Algebraic and geometric topology**, (**58** #24239)
**School:**
  **Latin American, Mathematics** *See* **Lectures: Algebraic and differential topology**, (**49** #6216) *and* **Geometry and topology**, (**56** #11)
  **Mathematical** ★Десятая математическая школа (пос. Кацивели/Нальчик, 1972 г.). (Russian) [Tenth Mathematical School (Kaciveli/Nalchik, 1972)] (**56** #15261)
**Séminaire:**
  **Singularités d'Applications Différentiables** *See* **Singularités d'applications différentiables**, (**55** #11287)
**Seminar:**
  **Canadian Mathematical Congress** *See* **Proceedings: Biennial Seminar of the Canadian Mathematical Congress**, (**50** #4191) *and* **Proceedings: Biennial Seminar of the Canadian Mathematical Congress**, (**50** #4192)
**Singularités d'applications différentiables** ★Singularités d'applications différentiables. (**55** #11287)
**Singularities of hypersurfaces** ★Singularities of hypersurfaces. (Japanese) (**58** #27954)
**Summer School:**
  **Mathematical** *See* **School: Mathematical**, (**56** #15261)
**Symmetric spaces** ★Symmetric spaces. (**53** #687)
**Symposium:**
  **Algebraic and Geometric Topology** *See* **Algebraic and geometric topology**, (**58** #24239)
  **Singularities of Hypersurfaces** *See* **Singularities of hypersurfaces**, (**58** #27954)
  **Taniguchi** *See* **Lecture notes from the Taniguchi International Symposium**, (**58** #15773)
**Topics in topology** ★Topics in topology. (**49** #3802)
**Topological dynamics** *See* **Recent advances in topological dynamics**, (**51** #6880)
**Topological methods in algebraic topology** *See* **Algebraic and geometrical methods in topology**, (**50** #8492)
**Topology** *See* **Topics in topology**, (**49** #3802); **Proceedings: University of Oklahoma Topology Conference**, (**49** #6114); **Geometry and topology**, (**56** #11) *and* **Algebraic and geometric topology**, (**58** #24239)
**Varenna** *See* **Differential operators on manifolds**, (**58** #18514)

## 57Axx Topological manifolds

**Sher, R. B.** A survey of some results in geometric topology. **56** #1315

Secondary classifications:

(**Atiyah, M. F.**) *See* **Kirby, Robion C.; et al.**, (**58** #31082)
**Kirby, Robion C.** (*with* Siebenmann, Laurence C.) ★Foundational essays on topological manifolds, smoothings, and triangulations. (**58** #31082)
(**Milnor, John W.**) *See* **Kirby, Robion C.; et al.**, (**58** #31082)
**Siebenmann, Laurence C.** *See* **Kirby, Robion C.**, (**58** #31082)

### 57A05 Topology of $E_2$, 2-manifolds

**Betke, U.** (*with* Schulz, Christoph; Wills, Jörg M.) Mannigfaltigkeiten im 2-Skelett konvexer Polytope. **58** #18457
**Betten, Dieter** Sperner-Homöomorphismen auf Ebene, Zylinder und Möbiusband. **53** #11615
**Bing, R. H.** (*with* Starbird, Michael) Linear isotopies in $E^2$. **57** #1495
**Birman, Joan S.** (*with* Hilden, Hugh M.) On the mapping class groups of closed surfaces as covering spaces. **45** #1169
  A normal form in the homeotopy group of a surface of genus 2, with applications to 3-manifolds. **45** #4376
  (*with* Chillingworth, David) On the homeotopy group of a non-orientable surface. **45** #9334
**Brown, Morton** Sets of constant distance from a planar set. **47** #4263
**Călugăreanu, George** Sur un théorème de H. Zieschang. **51** #14056
**Cannon, James W.** Piercing disks with tame arcs. **49** #6241
**Cauty, Robert** Un théorème de sélection et l'espace des rétractions d'une surface. **51** #6814
**Ceder, Jack** The plane is the union of $\aleph_0$ disjoint connected curves. **52** #15466
**Charlton, H. J.** Dimension raising maps for which polyhedra are mapped to polyhedra. **46** #894
**Chillingworth, David** Winding numbers on surfaces. II. **47** #9624
  *See also* **Birman, Joan S.**, **45** #9334
**Cohen, Joel M.** Homotopy surfaces. **50** #11237
**Fajuyigbe, Oladele** A theorem on the extension of periodic transformations of orientable surfaces. **56** #1316
**Fenn, Roger** Some applications of the width and breadth of a closed curve to the two-dimensional sphere. **51** #6815
**Fisk, Steve** Variations on coloring, surfaces and higher-dimensional manifolds. **56** #13221
**Freed, Benjamin M.** Embedding contractible 2-complexes in $E^4$. **52** #11915
**Gomory, Ralph E.** (*with* Hu, T. C.; Yohe, J. M.) *R*-separating sets. **50** #11238
**Grossman, Edna K.** On the residual finiteness of certain mapping class groups. **53** #9216
**Gulliver, Robert D., II** Finiteness of the ramified set for branched immersions of surfaces. **57** #7604
**Hilden, Hugh M.** *See* **Birman, Joan S.**, **45** #1169
**Hirsch, Ulrich** Offene Abbildungen von Flächen auf die 2-Sphäre mit minimalem Defekt. **55** #4175
**Horňák, Mirko** (*with* Jucovič, Ernest) Nearly regular cell-decompositions of orientable 2-manifolds with at most two exceptional cells. (Russian summary) **57** #1496
**Hu, T. C.** *See* **Gomory, Ralph E.; et al.**, **50** #11238
**Ikeda, Hiroshi** Acyclic fake surfaces. **48** #5078
  Non-contractible acyclic normal spines. **48** #12533
**Jaco, William** (*with* Shalen, Peter B.) Surface homeomorphisms and periodicity. **57** #4173
**Jenkins, James A.** A topological three pole theorem. **45** #4377
**Jucovič, Ernest** *See* **Horňák, Mirko**, **57** #1496
**Lee, Jong Pil** Homeotopy groups of orientable 2-manifolds. **47** #9625
**Luft, E.** Covering of 2-dimensional manifolds with open cells. **46** #895
**Malgoire, Jean** *See* **Voisin, Christine**, **58** #24270
**Meeks, William H., III** (*with* Patrusky, Julie) Representing homology classes by embedded circles on a compact surface. **57** #13951
**Meyerson, Mark D.** Representing homology classes of closed orientable surfaces. **54** #13916
**Nadler, Sam B., Jr.** (*with* Quinn, Joseph E.; Stavrakas, Nick M.) Hyperspaces of compact convex sets. II. (Russian summary) **58** #24269
**Nasrulaev, F. S.** On the question of the topological structure of polygonal surfaces of class *E*. (Russian) **57** #1497
**Nguyen Huy Xuong** Graphes régulièrement représentables sur le tore. (English summary) **53** #9217
  Sur les immersions d'un graphe dans les surfaces orientables. (English summary) **55** #13429
**Papakyriakopoulos, C. D.** Planar regular coverings of orientable closed surfaces. **52** #9232
**Patrusky, Julie** *See* **Meeks, William H., III**, **57** #13951
**Powell, Jerome** Two theorems on the mapping class group of a surface. **58** #13045
**Quine, John** Tangent winding numbers and branched mappings. **57** #4174
**Quinn, Joseph E.** *See* **Nadler, Sam B., Jr.; et al.**, **58** #24269
**Rosen, Harvey** Spanning disks for domains with free fundamental groups. **56** #16631
**Schulz, Christoph** *See* **Betke, U.; et al.**, **58** #18457
**Shalen, Peter B.** *See* **Jaco, William**, **57** #4173
**Slocum, Richard** The Kline 2-sphere characterization—by definition. **50** #11239
**Sprows, David J.** Homeotopy groups of compact 2-manifolds. **53** #1591
**Starbird, Michael** *See* **Bing, R. H.**, **57** #1495
**Stavrakas, Nick M.** *See* **Nadler, Sam B., Jr.; et al.**, **58** #24269
**Suzuki, Shin'ichi** On homeomorphisms of a 3-dimensional handlebody. **55** #6409
**Tondra, Richard J.** The domain rank of open surfaces of infinite genus. **45** #5979
  The domain rank of a surface is countable. **51** #1826

**Tsukui, Yasuyuki** On a prime surface of genus 2 and homeomorphic splitting of 3-sphere. **51** #14057

**Vincent, Paul A.** A metrization theorem for 2-manifolds. **55** #13430

**Voisin, Christine** (*with* Malgoire, Jean) ★Cartes cellulaires. **58** #24270

**Vrănceanu, Gheorghe** Sur une caractérisation d'une surface fermée orientable. **51** #6816

**Wagner, Neal R.** A continuity property with applications to the topology of 2-manifolds. **50** #11240

**Wills, Jörg M.** *See* **Betke, U.; et al., 58** #18457

**Yohe, J. M.** *See* **Gomory, Ralph E.; et al., 50** #11238

Secondary classifications:

**Baildon, John D.** Open simple maps and periodic homeomorphisms. (**48** #2976)

Euler characteristics of 2-manifolds and light open maps. (**53** #3983)

**Bers, Lipman** Nielsen extensions of Riemann surfaces. (**58** #6219)

An extremal problem for quasiconformal mappings and a theorem by Thurston. (**57** #16704)

**Birman, Joan S.** (*with* Hilden, Hugh M.) Lifting and projecting homeomorphisms. (**47** #9604)

Poincaré's conjecture and the homeotopy group of a closed, orientable 2-manifold. (**49** #7999)

The algebraic structure of surface mapping class groups. (**58** #7596)

**Cairns, Stewart S.** On isotopies of polyhedra including knots. (**50** #3212)

**Chillingworth, David** An algorithm for families of disjoint simple closed curves on surfaces. (**45** #2701)

**(Dehn, Max)** *See* **Guggenheimer, Heinrich W.,** (**58** #27069)

**Duda, Edwin** Light-open mappings. (**51** #1711)

**Evans, Benny D.** On extendings Dehn's lemma. (**52** #9211)

**Farias, Antonio O.** Immersions of the circle and extensions to orientation-preserving mappings. (**50** #14792)

**Fáry, István** (*with* Isenberg, Eric M.) On a converse of the Jordan curve theorem. (**49** #6184)

**Francis, George K.** Bounding properties of normal curves on spheres. (**50** #11270)

**Fujii, Kensô** A note on finite groups which act freely on closed surfaces. (**51** #14117)

**Gilman, Jane** An example about normalizers in mapping class groups. (**58** #6220)

**Gluck, Herman** Almost all simply connected closed surfaces are rigid. (**53** #4074)

**Gramain, André** ★Topologie des surfaces. (**45** #1181)

Sur les étalements ramifiés de surfaces. (**50** #14795)

**Guggenheimer, Heinrich W.** The Jordan curve theorem and an unpublished manuscript by Max Dehn. (**58** #27069)

**Hagopian, Charles L.** Planar images of decomposable continua. (**47** #4229)

Homogeneous plane continua. (**52** #4250)

**Hansen, Vagn Lundsgaard** On the space of maps of a closed surface into the 2-sphere. (**52** #6778)

**Harary, Frank** (*with* Rosen, Ronald H.) On the planarity of 2-complexes. (**55** #10304)

**Hilden, Hugh M.** *See* **Birman, Joan S.,** (**47** #9604)

**Ho, Chung Wu** Deforming p. l. homeomorphisms on a convex polygonal 2-disk. (**51** #14077)

Deforming P. L. homeomorphisms on a convex 2-disk. (**51** #11529)

**Homenko, M. P.** (*with* Javors'kiĭ, E. B.) Representation of 2-manifolds by means of graphs. (Ukrainian. Russian and English summaries) (**52** #13456)

**Isenberg, Eric M.** *See* **Fáry, István,** (**49** #6184)

**Javors'kiĭ, E. B.** One-component embedding of graphs, and $\varphi$-transformations. (Ukrainian. Russian and English summaries) (**53** #2725)

*See also* **Homenko, M. P.,** (**52** #13456)

**Jucovič, Ernest** (*with* Trenkler, Marián) A theorem on the structure of cell-decompositions of orientable 2-manifolds. (**49** #8903)

**Kronheimer, E. H.** Spheres which look round all round are round. (**55** #6381)

**Ladegaillerie, Yves** Classification topologique des plongements des 1-complexes compacts dans les surfaces. (**50** #14758)

Un théorème d'isotopie sur les surfaces. (**52** #4302)

**Lewis, Wayne** (*with* Walsh, John J.) A continuous decomposition of the plane into pseudo-arcs. (**58** #2750)

**Lyndon, Roger C.** On the combinatorial Riemann-Hurwitz formula. (**53** #13433)

**MacLachlan, Colin** On representations of Artin's braid group. (**58** #12994)

**Manukjan, S. N.** Some properties of partitionings of the plane by nondegenerate constructive curves. (Russian. Armenian summary) (**56** #5239)

**Metzler, Wolfgang** Über den Homotopietyp zweidimensionaler $CW$-Komplexe und Elementartransformationen bei Darstellungen von Gruppen durch Erzeugende und definierende Relationen. (**55** #13402)

**Michaelides, George J.** Complements of solenoids in $S^3$ are $m$-spaces. (**57** #10686)

**Nathan, William D.** Open mappings on 2-manifolds. (**46** #6270)

**Polley, Clemens** Zweidimensionale topologische Geometrien, in denen lokal die dreifache Ausartung des desarguesschen Satzes gilt. (**46** #9847)

**Rosen, Ronald H.** *See* **Harary, Frank,** (**55** #10304)

**Slocum, Richard** Conditions which insure that a Peano continuum is a 2-cell, a 2-sphere or an annulus. (**53** #1538)

**Trenkler, Marián** *See* **Jucovič, Ernest,** (**49** #8903)

**Viro, O. Ja.** Local knotting of sub-manifolds. (Russian) (**51** #6833)

**Wagner, Neal R.** A continuity property and surface topology. (**49** #3822)

**Walser, Hans** Eine Übertragung der Formel von Gauss-Bonnet auf ebene Netze. (**53** #14363)

**Walsh, John J.** *See* **Lewis, Wayne,** (**58** #2750)

**Wright, Perrin** Covering 2-dimensional polyhedra by 3-manifold spines. (**56** #16611)

**Zieschang, H.** On the homeotopy group of surfaces. (**49** #574)

## 57A10 Topology of $E_3$, 3-manifolds [See also 55Axx.]

**Altshuler, Amos** (*with* Steinberg, Leon) Neighborly combinatorial 3-manifolds with 9 vertices. **49** #6242

**Anderson, E. H.** Chains of simple closed curves and a dogbone space. **45** #4378

Self-universal crumpled cubes and a dogbone space. **46** #9989

**Armentrout, Steve** ★Cellular decompositions of 3-manifolds that yield 3-manifolds **54** #1225

A Bing-Borsuk retract which contains a 2-dimensional absolute retract. **51** #14058

**Bailey, James** (*with* Rolfsen, Dale) An unexpected surgery construction of a lens space **58** #7633

**Bass, Charles D.** Some special decompositions of $E^3$. **53** #9218

Piercing connected subsets of 2-spheres with tame arcs. **55** #4176

**Bennequin, Daniel** ★Les bords des revêtements ramifiés des surfaces (d'après Titus Marx et Francis). **58** #18458

**Berge, J. O.** (*with* Brin, Matthew G.) A handlebody with one pillbox has no fake 3-cells **51** #11512

**Bing, R. H.** Models for $S^3$. **50** #11241

An unusual map of a 3-cell onto itself. **50** #11242

Pulling back feelers. **53** #4066

**Birman, Joan S.** On the equivalence of Heegaard splittings of closed, orientable 3-manifolds. **51** #11513

(*with* Craggs, Robert) On the $\mu$-invariant of $Z$-homology 3-spheres. **53** #1592

(*with* González Acuña, Francisco J.; Montesinos Amilibia, José María) Heegaard splittings of prime 3-manifolds are not unique. **55** #4177

Special Heegaard splittings for closed, oriented 3-manifolds. **58** #2817

(*with* Craggs, Robert) The $\mu$-invariant of 3-manifolds and certain structura properties of the group of homeomorphisms of a closed, oriented 2-manifold. **58** #2818

**Boehme, Harald** Fast genügend grosse irreduzible 3-dimensionale Mannigfaltigkeiten **49** #3946

**Brin, Matthew G.** Improving 3-manifold compactifications of open 3-manifolds. **58** #13046

*See also* **Berge, J. O., 51** #11512

**Brown, Edward M.** (*with* Brown, Marianne S.; Feustel, C. D.) On properly embedding planes in 3-manifolds. **53** #1593

**Brown, Marianne S.** Constructing isotopies in noncompact 3-manifolds. **45** #7717

Constructing isotopes on noncompact 3-manifolds. **48** #9726

*See also* **Brown, Edward M.; et al., 53** #1593

**Burgess, C. E.** Embeddings of surfaces in Euclidean three-space. **51** #11514

Spheres in $E^3$ which are homogeneous over a 0-dimensional set. **56** #1317

**Cannon, James W.** Characterization of tame subsets of 2-spheres in $E^3$. **45** #5980

Singular side approximations for 2-spheres in $E^3$. **48** #12534

(*with* Loveland, L. D.) A 2-sphere in $E^3$ with vertically connected interior is tame. **49** #8017

(*with* Feustel, C. D.) Essential embeddings of annuli and Möbius bands in 3-manifolds. **52** #11916

**Cappell, Sylvain E.** (*with* Shaneson, Julius L.) A note on the Smith conjecture. **58** #2819

**Chang, Bai Ching** On isotopies that leave a tree fixed. **51** #14059

**Craggs, Robert** A new proof of the Reidemeister-Singer theorem on stable equivalence of Heegaard splittings. **53** #14495

*See also* **Birman, Joan S., 53** #1592 *and* **Birman, Joan S., 58** #2818

**Daigle, R. J.** (*with* Feustel, C. D.) Essential maps and embeddings of annuli in nonorientable $M^3$. **52** #4291

**Daverman, Robert J.** Elementary arcs in 3-space that can be realized by squeezing 3-cells. **45** #4379

(*with* Eaton, William T.) Universal crumpled cubes. **45** #1136 (EA **51**)

**Detmer, Richard C.** Sets which are tame in arcs in $E^3$. **50** #3229

Characterization of sets which are tame in complexes in $E^3$. **50** #14752

**Eaton, William T.** The sum of solid spheres. **46** #8227

Applications of a mismatch theorem to decomposition spaces. **52** #11917

*See also* **Daverman, Robert J., 45** #1136 (EA **51**)

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## 57A30 Engulfing

**Crary, Fred D.** Some new engulfing theorems. **53** #14499
**Daverman, Robert J.** Wild disks in $E^n$ that can be squeezed only to tame arcs. **47** #2608
**Edwards, Robert D.** (*with* Glaser, Leslie C.) A method for shrinking decompositions of certain manifolds. **45** #4423
**Glaser, Leslie C.** *See* **Edwards, Robert D.**, **45** #4423
**Hosokawa, Hiroshi** *Z*-sets in polyhedra. **53** #14500
**MacLean, D. W.** A noncompact *h*-cobordism theorem. **48** #5084
**Rushing, T. Benny** A summation of results of infinite engulfing. **50** #11248

Secondary classifications:

**Bazylev, V. T.** A certain remarkable class of nets. (Russian. English summary) (**58** #12787)
**Bryant, J. L.** Euclidean *n*-space modulo an $(n-1)$-cell. (**48** #3053)
**Detmer, Richard C.** Sets which are tame in arcs in $E^3$. (**50** #3229)

## 57A35 Imbeddings and immersions

**Armstrong, M. A.** Approximating topological concordances. **57** #13956
**Banchoff, Thomas F.** Triple points and singularities of projections of smoothly immersed surfaces. **51** #14065
Triple points and surgery of immersed surfaces. **51** #14066
**Bennequin, Daniel** Exemples d'immersions du disque dans le plan qui ne sont pas projections de plongements dans l'espace. (English summary) **52** #1703
**Bothe, Hans Günter** Are neighborhoods of curves in 3-manifolds embeddable in $E^3$? (Russian summary) **50** #1245
**Brakes, W. R.** An improved version of the noncompact weak canonical Schoenflies theorem. **52** #11925
Canonical extensions for embeddings of topological spheres of any codimension. **56** #6664
**Bryant, J. L.** (*with* Lacher, R. C.) Mapping cylinder neighborhoods of one-complexes in four-space. **45** #2718
**Cannon, James W.** New proofs of Bing's approximation theorems for surfaces. **48** #7289
Taming cell-like embedding relations. **52** #11926
**Černavskiĭ, A. V.** Espace de plongements. **55** #6435
Deckhomotopieeigenschaft in der Faserung der Homöomorphismengruppe über dem Raum der lokal flachen Einbettungen. **50** #8537
The identity of local flatness and local simple connectedness for imbeddings of $(n-1)$-dimensional into *n*-dimensional manifolds when $n>4$. (Russian) **48** #12541
**Coelho, Renato Pereira** Sur un problème de pseudo-isotopie. **57** #4179
**Dancis, Jerome** (*with* Lusk, Ewing L.) Embeddings of bounded topological manifolds. **48** #1240
**Daverman, Robert J.** Slicing theorems for *n*-spheres in Euclidean $(n+1)$-space. **45** #4422
On the scarcity of tame disks in certain wild cells. **48** #5085
On the absence of tame disks in certain wild cells. **53** #4071
**Duvall, Paul F.** (*with* Husch, L. S.) Homeomorphisms with polyhedral irregular sets. I. **47** #9629
**Dymov, A. Z.** Properties of open manifolds that are connected with the behavior of the fundamental group at infinity. (Russian) **58** #18466
**Edwards, Robert D.** Dimension theory. I. **52** #15477
**Feustel, C. D.** On embedding annuli in $M^3$. **46** #4538
Knots and links in irreducible $M^3$. **57** #1499
**Gauld, David B.** Submersions and foliations of topological manifolds. **48** #12542
Foliations on topological manifolds. **50** #1246
**Gulliver, Robert D., II** Branched immersions of surfaces and reduction of topological type. I. **52** #15478
**Hajduk, B.** A characterization of differentiable submanifolds of Euclidean spaces. **48** #9728
**Hansen, Vagn Lundsgaard** Embedding finite covering spaces into trivial bundles. **58** #13051
**Heil, Wolfgang H.** On punctured balls in manifolds. **56** #3844
**Hodgson, Jonathan P. E.** The Whitney technique for Poincaré complex embeddings. **46** #2680
**Husch, L. S.** *See* **Duvall, Paul F.**, **47** #9629
**Kaneto, Takeshi** On isotopy groups of holed spheres. **53** #6569
On isotopy groups of simply connected holed manifolds. **53** #6570
**Kirby, Robion C.** (*with* Siebenmann, Laurence C.) Normal bundles for codimension 2 locally flat imbeddings. **53** #4072
**Kobayashi, Kazuaki** A generalization of Whitney lemma. **54** #11337
**Kuiper, Nicolaas H.** Tight topological embeddings of the Moebius band. **47** #2609
(*with* Pohl, William F.) Tight topological embeddings of the real projective plane in $E^5$. **58** #13052
**Kurata, Masahiro** Immersions of topological manifolds. **45** #9336
**Lacher, R. C.** *See* **Bryant, J. L.**, **45** #2718
**Ladegaillerie, Yves** Classification topologique des plongements des 1-complexes compacts dans les surfaces. **50** #14758
Un théorème d'isotopie sur les surfaces. **52** #4302
**Lashof, Richard** The immersion approach to triangulation and smoothing. **47** #5879
Topological manifolds and the smoothing problem. **58** #13053
**Lusk, Ewing L.** *See* **Dancis, Jerome**, **48** #1240
**Matveev, S. V.** Approximation of imbeddings of manifolds by locally flat imbeddings in codimension greater than two. (Russian. English summary) **49** #11519
**McMillan, D. R., Jr.** One-dimensional shape properties and three-manifolds. **51** #6824
**Osborne, Richard** Embedding Cantor sets in a manifold. III. Approximating spheres. **53** #9222
**Pedersen, Erik Kjaer** Topological concordances. **49** #3950
Embeddings of topological manifolds. **51** #14067
Topological concordances. **55** #9104
**Pohl, William F.** *See* **Kuiper, Nicolaas H.**, **58** #13052
**Price, T. M.** On codimension two embeddings. **52** #15476a
(*with* Seebeck, C. L., III) A codimension two taming theorem. **52** #15476b
**Rosen, Ronald H.** An annulus theorem for suspension spheres. **54** #8642
**Rushing, T. Benny** Everywhere wild cells and spheres. **46** #896
★Topological embeddings. **50** #1247
The compacta *X* in $S^n$ for which $\mathrm{Sh}(X)=\mathrm{Sh}(S^k)$ is equivalent to $S^n - X \approx S^n - S^k$. **57** #1500
**Sakai, Katsuro** An embedding theorem of infinite-dimensional manifold pairs in the model space. **58** #7640
**Scharlemann, Martin G.** Isotopy and cobordism of homology spheres in spheres. **57** #4180
Non-PL imbeddings of 3-manifolds. **58** #24277
**Schmitt, Bruno V.** Sur les plongements, admettant zéro ou un point fixé, du disque dans le plan. **53** #1597
**Seebeck, C. L., III** Locally homotopically unknotted embeddings of manifolds in codimension two. **52** #15476c
*See also* **Price, T. M.**, **52** #15476b
**Siebenmann, Laurence C.** Deformation of homeomorphisms on stratified sets. I, II. **47** #7752
*See also* **Kirby, Robion C.**, **53** #4072
**Smith, Justin R.** Complements of codimension-two submanifolds. The fundamental group. **58** #18467
**Štan'ko, M. A.** Approximation of embeddings of manifolds in codimension one. (Russian) **51** #6823
Imbedding of compacta in Euclidean space of dimension 5,4 and 3. (Russian) **54** #1232
**Starbird, Michael** A complex which cannot be pushed around in $E^3$. **56** #1320
**Stern, Ronald J.** Classification theorems for parameterized families of smooth or piecewise linear manifold structures respecting a submanifold. **55** #6436
**Stevens, Richard S.** Classification of homotopy torus knot spaces. **52** #1704
**Summerhill, R. Richard** Unknotting cones in the topological category. **46** #9991
**Vrabec, Jože** The Jordan and Schoenflies theorems. (Slovenian. English summary) **57** #13957
**Yasui, Tsutomu** On the cohomology of certain quotient manifolds of the real Stiefel manifolds and their applications. **45** #1192

Secondary classifications:

**Antonelli, Peter L.** On the *h*-enclosability of spheres. (**54** #13936)
**Ball, B. J.** (*with* Sher, Richard B.) Embedding circle-like continua in $E^3$. (**48** #7227)
**Burghelea, Dan** (*with* Lashof, Richard) Stability of concordances and the suspension homomorphism. (**55** #11280)
**Cappell, Sylvain E.** Splitting obstructions for Hermitian forms and manifolds with $Z_2 \subset \pi_1$. (**49** #3987)
Manifolds with fundamental group a generalized free product. I. (**50** #8562 (EA **50**) )

**Charatonik, Janusz J.** A theorem on non-planar dendroids. (Russian summary) (53 #6511)
**Daverman, Robert J.** A summary of results and problems concerning flatness of codimension one spheres in $E^n$. (53 #11617)
**Gramain, André** Sur le groupe fundamental de l'espace des noeuds. (English summary) (57 #1552)
**Gulliver, Robert D., II** Finiteness of the ramified set for branched immersions of surfaces. (57 #7604)
**Harrold, O. G., Jr.** Locally unknotted sets in three-space. (48 #7284)
**Hausmann, Jean-Claude** Plongements de sphères d'homologie. (47 #4276)
**Heisey, Richard E.** Stability, open embeddings, and classification of bounded weak-* manifolds. (54 #11373)
**Hendriks, Harrie** Applications de la théorie d'obstruction en dimension 3. (47 #7744)
**Johnson, F. E. A.** Lefschetz duality and topological tubular neighbourhoods. (46 #9990)
**Kato, Mitsuyoshi** Classification of compact manifolds homotopy equivalent to a sphere. (48 #3057)
**Kurata, Masahiro** Homotopy groups of s.s. complexes of embeddings. (53 #1612)
**Lashof, Richard** *See* **Burghelea, Dan,** (55 #11280)
**McClendon, James F.** Embedding metric families. (53 #14490)
**Poénaru, Valentin** (*with* Toulouse, G.) The crossing of defects in ordered media and the topology of 3-manifolds. (French summary) (58 #32685)
**Quitté, Claude** Immersions auto-duales de graphes dans les surfaces non orientées. (English summary) (56 #16610)
**Sher, Richard B.** *See* **Ball, B. J.,** (48 #7227)
**Shilepsky, Arnold C.** Extendible and homogeneously embedded simple closed curves. (51 #4214)
**Starbird, Michael** Linear isotopies in $E^3$. (56 #13224)
**Summerhill, R. Richard** General position for closed subsets of euclidean space. (48 #9682)
**Swarup, G. Ananda** On embedded spheres in 3-manifolds. (48 #7252)
**Szűcs, A.** Cobordism groups of $l$-immersions. I. (A) Homotopy representability of the cobordism group of immersions with a given multiplicity of self-intersections. (Russian) (55 #13431)
  Cobordism groups of $l$-immersions. II. (Russian) (55 #13432)
**Thurston, William P.** A generation of the Reeb stability theorem. (50 #8558)
**Toulouse, G.** *See* **Poénaru, Valentin,** (58 #32685)
**Van Eps, John** Sectioning bundles of high filtration and immersions. (48 #1236)
**Vo Thanh Liem** Certain continua in $S^n$ with homeomorphic complements have the same shape. (58 #13049)

## 57A40 Neighborhoods of submanifolds

**Boyd, W. S.** (*with* Wright, Alden H.) A 1-ALG simple closed curve in $E^3$ is tame. 48 #3055
**Bryant, J. L.** (*with* Lacher, R. C.; Smith, B. J.) Free spheres with mapping cylinder neighborhoods. 52 #11927
  (*with* Lacher, R. C.) Embeddings with mapping cylinder neighborhoods. 52 #15479
**Coram, Donald** (*with* Duvall, Paul F.) Neighborhoods of sphere-like continua. 53 #4073
**Daverman, Robert J.** On weakly flat 1-spheres. 46 #9992
**Dieffenbach, Robert M.** Regular neighborhoods of orientable 3-manifolds. 53 #9223
**Duvall, Paul F.** *See* **Coram, Donald,** 53 #4073
**Edmonds, Allan L.;** Equivariant regular neighbourhoods. 57 #13958
**Ferry, Steven** When ϵ-boundaries are manifolds. 54 #1233
**Gauld, David B.** Tubular neighbourhoods for submersions of topological manifolds. 47 #9630
**Guillou, Lucien** (*with* Hähl, H.) Les voisinages réguliers ouverts: critères homotopigues d'identification. 54 #13924
**Hähl, H.** *See* **Guillou, Lucien,** 54 #13924
**Hollingsworth, John** (*with* Rushing, T. Benny) Embeddings of shape classes of compacta in the trivial range. 53 #1598
**Lacher, R. C.** *See* **Bryant, J. L.; et al.,** 52 #11927 *and* **Bryant, J. L.,** 52 #15479
**Marin, Alexis** La transversalité topologique. 57 #10707
**Miller, Richard T.** Mapping cylinder neighborhoods of some ANR's. 50 #11249
  Mapping cylinder neighborhoods of some ANR's. 53 #6571
**Pedersen, Erik Kjaer** Regular neighborhoods in topological manifolds. 58 #2828
**Rosen, Ronald H.** Contractible neighborhoods in manifold factors. 48 #7290
**Rubin, Leonard R.** Relative collaring. 53 #14501
**Rushing, T. Benny** *See* **Hollingsworth, John,** 53 #1598
**Šarko, V. V.** Smale's theorem for simply connected topological manifolds. (Russian) 57 #13959
**Smith, B. J.** *See* **Bryant, J. L.; et al.,** 52 #11927
**Stavroulakis, Nikias** Microfibrés et fibrés associés à certaines immersions. 51 #14068
**Weller, Glenn P.** Regular neighborhoods and topological manifolds. 48 #7291
**Wright, Alden H.** *See* **Boyd, W. S.,** 48 #3055

Secondary classifications:

**Coram, Donald** (*with* Daverman, Robert J.; Duvall, Paul F.) A loop condition for embedded compacts. (51 #14071)
**Daverman, Robert J.** *See* **Coram, Donald; et al.,** (51 #14071)
**Duvall, Paul F.** *See* **Coram, Donald; et al.,** (51 #14071)
**Ladegaillerie, Yves** Classification topologique des plongements des 1-complexes compacts dans les surfaces. (50 #14758)
**Matveev, S. V.** A certain method for the construction of 3-manifolds. (Russian. German summary) (52 #4293)
**McMillan, D. R., Jr.** An arc in a PL $n$-manifold with no neighborhood that embeds in $S^n$, $n > 4$. (58 #2825)
**Siebenmann, Laurence C.** Regular (or canonical) open neighborhoods. (51 #6831)

## 57A45 Flatness

**Benson, Fred** A short proof of a Kirby flattening theorem. 53 #1599
**Cantrell, J. C.** Codimension one embeddings of manifolds with locally flat triangulations. 47 #9627
  Some non-continuous functions and pseudo-flattenings. 52 #9237
**Chapman, T. A.** Locally flat embeddings of Hilbert cubes are flat. 51 #14069
**Daverman, Robert J.** Locally nice codimension one manifolds are locally flat. 47 #96
  Factored codimension one cells in Euclidean $n$-space. 51 #4257
  A summary of results and problems concerning flatness of codimension o spheres in $E^n$. 53 #11617
  Wild spheres in $E^n$ that are locally flat modulo tame Cantor sets. 51 #11524
  Homotopy classification of complements of locally flat codimension two sphere 54 #8645
  (*with* Rushing, T. Benny) Weak flatness criteria for codimension 2 spheres codimension 1 manifolds. 52 #15480
  Singular regular neighborhoods and local flatness in codimension one. 54 #86
  Embeddings of $(n-1)$-spheres in Euclidean $n$-space. 58 #31096
**Hollingsworth, John** (*with* Rushing, T. Benny) Homotopy characterizations of weak flat codimension 2 spheres. 54 #8644
**Johnson, F. E. A.** Lefschetz duality and topological tubular neighbourhoods. 46 #99
**Price, T. M.** (*with* Seebeck, C. L., III) Somewhere locally flat codimension one manifolds with 1-ULC complements are locally flat. 49 #11520
**Rushing, T. Benny** Geometrical arguments concerning two-sided submanifolds, fla submanifolds and pinched bicollars. 45 #4430
  *See also* **Daverman, Robert J.,** 52 #15480 *and* **Hollingsworth, John,** 54 #8644
**Seebeck, C. L., III** *See* **Price, T. M.,** 49 #11520
**Venema, Gerard A.** Weak flatness for shape classes of sphere-like continua. 56 #953

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**Ancel, Fredric D.** (*with* McMillan, D. R., Jr.) Complementary 1-ULC properties fo 3-spheres in 4-space. (53 #14498)
**Černavskiĭ, A. V.** Deckhomotopieeigenschaft in der Faserung der Homöomorphismengruppe über dem Raum der lokal flachen Einbettungen. (50 #8537)
**Daverman, Robert J.** On weakly flat 1-spheres. (46 #9992)
  Approximating polyhedra in codimension one spheres embedded in $s^n$ by tam polyhedra. (50 #14768)
**Indihar, Stane** ★Izotopij v evklidskem prostoru. (Slovenian) [Isotopy in Euclidea space] (52 #15472)
**Lacher, R. C.** Cell-like mappings and their generalizations. (58 #31095)
**Martin, Nigel** Locally flat embeddings of homotopy manifolds. (53 #6575)
**Matveev, S. V.** Approximation of imbeddings of manifolds by locally flat imbeddings i codimension greater than two. (Russian. English summary) (49 #11519)
**McMillan, D. R., Jr.** *See* **Ancel, Fredric D.,** (53 #14498)
**Price, T. M.** On codimension two embeddings. (52 #15476a)
  (*with* Seebeck, C. L., III) A codimension two taming theorem. (52 #15476b)
**Rushing, T. Benny** A summation of results of infinite engulfing. (50 #11248)
**Seebeck, C. L., III** Locally homotopically unknotted embeddings of manifolds in codimension two. (52 #15476c)
  *See also* **Price, T. M.,** (52 #15476b)

## 57A50 $S^{n-1} \subset E^n$, Schoenflies problem

**Doyle, P. H.** Accessibility and the Schoenflies theorem. 46 #2681
**de Groot, Johannes H.** The generalized Schoenflies theorem for Euclidean $n$-space 53 #6572
**Marx, Morris L.** A combinatorial invariant that characterizes normal immersions of $S$ into $R^2$. 48 #12543
**Weill, Lawrence R.** A new characterization of tame 2-spheres in $E^3$. 49 #3951

Secondary classifications:

**Daverman, Robert J.** Embeddings of $(n-1)$-spheres in Euclidean $n$-space. (58 #31096
**(Dehn, Max)** *See* **Guggenheimer, Heinrich W.,** (58 #27069)
**Gauld, David B.** (*with* Vamanamurthy, M. K.) A special case of Schönflies' theorem fo quasiconformal mappings in $n$-space. (58 #22544)
**Guggenheimer, Heinrich W.** The Jordan curve theorem and an unpublished manuscrip by Max Dehn. (58 #27069)
**Vamanamurthy, M. K.** *See* **Gauld, David B.,** (58 #22544)

## 57A55 Microbundles

**Asada, Akira** Connection of topological manifolds. 57 #4181
  Connection of topological manifolds. 50 #8538
**Chazin, Robert L.** Stable thickenings in the topological category. 45 #6009
**le Dimet, Jean-Yves** $G$-variétés topologiques et $G$-microfibrés. 56 #3845
**Heitz, Raymond** Sur les groupes $\mathbf{K}_{\mathrm{Top}}(\mathrm{S}_n)$. 56 #16639
**Matsumoto, Yukio** Topological $t$-regularity and Rohlin's theorem. 45 #7719
**Mogilski, J.** An infinite-dimensional Kister-Mazur theorem on microbundles. (Russia summary) 51 #14070
**Scharlemann, Martin G.** Transversality theories at dimension four. 53 #14502
**Stern, Ronald J.** The tangent microbundle of a suitable manifold. 45 #1174

Secondary classifications:

**Cauty, Robert** Le fibré tangent de Nash est un rétracte absolu de voisinage. (49 #11510)
**Lashof, Richard** The immersion approach to triangulation and smoothing. (47 #5879)
**Varadarajan, K.** Span and stably trivial bundles. (54 #13931)

## 57A60 Cellularity

**Ball, B. J.** (*with* Sher, Richard B.) Extending cell-like maps on manifolds. **48** #7292
**Burgess, C. E.** Semicellular sets in crumpled cubes. **52** #9238
**Coram, Donald** Semicellularity, decompositions and mappings in manifolds. **50** #8539
(*with* Daverman, Robert J.; Duvall, Paul F.) A loop condition for embedded compacts. **51** #14071
**Daverman, Robert J.** On cells in Euclidean space that cannot be squeezed. **51** #6825
*See also* **Coram, Donald; et al., 51** #14071
**Duvall, Paul F.** *See* **Coram, Donald; et al., 51** #14071
**Glaser, Leslie C.** On mildly cellular pseudo cells. **52** #15481
**Lacher, R. C.** A cellularity criterion based on codimension. (Serbo-Croatian summary) **53** #14503
Cell-like mappings and their generalizations. **58** #31095
**Schurle, Arlo W.** Strongly cellular subsets of $E^3$. **48** #7293
**Sher, Richard B.** Realizing cell-like maps in Euclidean space. **46** #2683
*See also* **Ball, B. J., 48** #7292
**Siebenmann, Laurence C.** On suspensions of homology spheres. **47** #1064
Approximating cellular maps by homeomorphisms. **45** #4431
**Summerhill, R. Richard** A characterization of the connectivity of a manifold in terms of large open cells. **52** #1705
**Voxman, William L.** On the countable union of cellular decompositions of $n$-manifolds. **48** #9729
**Walsh, John J.** Fiber preserving cellular decompositions. **46** #2682
**West, James E.** Compact ANR's have finite type. **50** #11250

Secondary classifications:

**Bryant, J. L.** (*with* Lacher, R. C.) A Hopf-like invariant for mappings between odd-dimensional manifolds. (**58** #18463)
**Cantrell, J. C.** Some non-continuous functions and pseudo-flattenings. (**52** #9237)
**Grünbaum, Branko** (*with* Shephard, Geoffrey C.) Incidence numbers of complexes and polytopes. (**55** #12554)
**Lacher, R. C.** *See* **Bryant, J. L.**, (**58** #18463)
**McCoy, Robert A.** Cells and cellularity in infinite-dimensional normed linear spaces. (**52** #4300)
**Rushing, T. Benny** A summation: the compacta $X$ in $S^n$ for which $\mathbb{S}h(X)=\mathbb{S}h(S^k)$ is equivalent to $S^n-X\approx S^n-S^k$. (**52** #15357)
**Shephard, Geoffrey C.** *See* **Grünbaum, Branko**, (**55** #12554)

## 57A65 Algebraic topology of manifolds

**Adachi, Masahisa** Topological submanifolds and homology classes of a topological manifold. **45** #4421
**Bauer, Joachim** Dimensionsdefekt stetiger Abbildungen $M^4\to S^3$. (English summary) **45** #2712
**Blass, Józef** (*with* Holsztyński, Włodzimierz) Cubical polyhedra and homotopy. (Italian summary) **49** #8022
(*with* Holsztyński, Włodzimierz) Cubical polyhedra and homotopy. II. (Italian summary) **49** #8023
(*with* Holsztyński, Włodzimierz) Cubical polyhedra and homotopy. III, IV. (Italian summaries) **51** #14072
**Brown, Edward M.** (*with* Tucker, Thomas W.) On proper homotopy theory for noncompact 3-manifolds. **48** #12544
**Buoncristiano, Sandro** (*with* Rourke, C. P.; Sanderson, Brian J.) ★A geometric approach to homology theory. **54** #1234 (EA **54**)
**Cairns, Stewart S.** *See* **Morse, Marston, 51** #4258
**Chang, Bai Ching** Which abelian groups can be fundamental groups of regions in Euclidean spaces? **47** #1059
**Church, Philip T.** (*with* Timourian, J. G.) Continuous maps with 0-dimensional branch set. **49** #1521
**Demaria, Davide Carlo** Sull'omotopia per quasiarchi. (English summary) **58** #13054
**Deo, Satya** The cohomological dimension of an $n$-manifold is $n+1$. **55** #4186
**Duvall, Paul F.** (*with* Husch, L. S.) Regular properly discontinuous $Z^n$-actions on open manifolds. **47** #7753
**Evans, Benny D.** (*with* Moser, Louise E.) Solvable fundamental groups of compact 3-manifolds. **46** #897
**Galewski, David E.** (*with* Hollingsworth, John; McMillan, D. R., Jr.) On the fundamental group and homotopy type of open 3-manifolds. **47** #5880
**Gottlieb, Daniel Henry** Homology tangent bundles and universal bundles. **46** #6364
**Gramain, André** Formes d'intersection et d'enlacement sur une variété. **57** #13960
**Hejný, Milan** Klein hyperbottle. **55** #6437
**Hollingsworth, John** *See* **Galewski, David E.; et al., 47** #5880
**Holsztyński, Włodzimierz** *See* **Blass, Józef, 49** #8022; **Blass, Józef, 49** #8023 *and* **Blass, Józef, 51** #14072
**Hsiang, Wu Chung** Manifolds with $\pi_1=\mathbf{Z}^k$. **45** #9340
**Husch, L. S.** *See* **Duvall, Paul F., 47** #7753
**Kobayashi, Teiichi** (*with* Sugawara, Masahiro) On stable homotopy types of stunted lens spaces. **47** #1062
**Krasinkiewicz, Józef** Local connectedness and pointed 1-movability. (Russian summary) **58** #18468
**Kuperberg, Włodzimierz** (*with* Olędzki, Juliusz) On certain types of movability of the approximatively $k$-connected compacta. (Russian summmary) **58** #2829
**Lacher, R. C.** (*with* McMillan, D. R., Jr.) Partially acyclic mappings between manifolds. **46** #898
**Lee, Ronnie** (*with* Raymond, Frank) Manifolds covered by Euclidean space. **51** #1833
**Lungulescu, Bogdan** Les groupes d'homologie singulière de quelques variétés topologiques. **45** #7716
**Maffei, John S.** On $\|^*(\overline{G}_s,q;R|Z)$, range group of some Chern-Simons invariants. **51** #14073
**McMillan, D. R., Jr.** *See* **Lacher, R. C., 46** #898 *and* **Galewski, David E.; et al., 47** #5880
**Morse, Marston** (*with* Cairns, Stewart S.) Singular homology on an untriangulated manifold. **51** #4258
$F$-deformations and $F$-tractions. **47** #9631
**Moser, Louise E.** *See* **Evans, Benny D., 46** #897
**Olędzki, Juliusz** *See* **Kuperberg, Włodzimierz, 58** #2829
**Raymond, Frank** *See* **Lee, Ronnie, 51** #1833
**Rourke, C. P.** *See* **Buoncristiano, Sandro; et al., 54** #1234 (EA **54**)
**Sanderson, Brian J.** *See* **Buoncristiano, Sandro; et al., 54** #1234 (EA **54**)
**Schmidt, Brian K.** Homotopy invariance of contravariant functors acting on smooth manifolds. **52** #11928
**Sjerve, Denis K.** Homology spheres which are covered by spheres. **46** #9993
**Skordev, Genčo S.** Incidence and coincidence of acyclic mappings. (Russian) **50** #1248
**Spence, Lawrence E.** On the image of $S^p\times S^q$ under mappings of degree one. **46** #8231
**Sugawara, Masahiro** *See* **Kobayashi, Teiichi, 47** #1062
**Timourian, J. G.** *See* **Church, Philip T., 49** #1521
**Tucker, Thomas W.** *See* **Brown, Edward M., 48** #12544

Secondary classifications:

**Becker, James C.** (*with* Casson, Andrew; Gottlieb, Daniel Henry) The Lefschetz number and fiber preserving maps. (**53** #14474)
**Casson, Andrew** *See* **Becker, James C.; et al.**, (**53** #14474)
**Deo, Satya** A one dimensional manifold is of cohomological dimension 2. (**52** #15433)
**Drechsler, Konrad** (*with* Sterz, Ulrich) Die Homologiegruppen zweidimensionaler Kegel. (**53** #456)
**Feustel, C. D.** A splitting theorem for closed orientable 3-manifolds. (**45** #4424)
Isotopic unknotting in $F\times I$. (**47** #4264)
**Geoghegan, Ross** Fibered stable compacta have finite homotopy type. (**58** #24257)
**Gottlieb, Daniel Henry** *See* **Becker, James C.; et al.**, (**53** #14474)
**Horvath, Raymond** Normal bundles of topological manifolds. (**46** #8225)
**Husseini, S. Y.** The products of manifolds with the f.p.p. need not have the f.p.p. (**51** #4223)
**Laudenbach, François** Formes différentielles de degré 1 fermées non singulières: classes d'homotopie de leurs noyaux. (**55** #1360)
**Oka, Mutsuo** On the cohomology structure of projective varieties. (**52** #6016)
**Okabe, Tsuneharu** The existence of the trajectory field. (**46** #4566)
**Randell, Richard C.** The homology of generalized Brieskorn manifolds. (**54** #1270)
**Rourke, C. P.** Block structures in geometric and algebraic topology. (**54** #8655)
**Salicrup López, Graciela** (*with* Vázquez, Roberto) Fibrations and coreflections. (Russian) (**58** #2683)
**Schafer, James A.** The signature of fiber bundles. (**48** #3046)
**Stasheff, James Dillon** Families of finite $H$-complexes—revisited. (**45** #6000)
**Sterz, Ulrich** *See* **Drechsler, Konrad**, (**53** #456)
**Vázquez, Roberto** *See* **Salicrup López, Graciela**, (**58** #2683)

## 57A70 Cobordism

**Anderson, Douglas R.** Generalized product theorems for torsion invariants with applications to flat bundles. **45** #2713
**Brown, Edgar H., Jr.** Generalizations of the Kervaire invariant. **45** #2719
**Cappell, Sylvain E.** (*with* Shaneson, Julius L.) Topological knots and knot cobordism. **47** #9632
**Madsen, Ib** (*with* Milgram, R. James) The oriented topological and **PL** cobordism rings. **50** #14759
**Milgram, R. James** The structure of the oriented topological and piecewise linear bordism rings. **54** #8646
*See also* **Madsen, Ib, 50** #14759
**Moran, Daniel A.** Minimal cell coverings of sphere bundles over spheres. **51** #1834
**Okabe, Tsuneharu** The existence of topological Morse function and its application to topological $h$-cobordism theorem. **45** #2716
**Shaneson, Julius L.** *See* **Cappell, Sylvain E., 47** #9632
**Szűcs, A.** Cobordism groups of $l$-immersions. II. (Russian) **55** #13432

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**Heitz, Raymond** Sur les groupes $\mathbf{K}_{\mathrm{Top}}(\mathbf{S}_n)$. (**56** #16639)

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**de Bartolomeis, Paolo** Normalità e paracompattezza nelle varietà topologiche. (English summary) **54** #8647
**Doyle, P. H.** (*with* Hocking, J. G.) Continuous bijections on manifolds. **54** #13925
**Ho, Chung Wu** On the recurrent homeomorphisms of a manifold. **57** #1501
**Hocking, J. G.** *See* **Doyle, P. H., 54** #13925
**(Kosiński, A.)** *See* **Zelins′kiĭ, Ju. B., 52** #11929
**Lanteri, Antonio** Fibrato canonico su una varietà topologica e caratterizzazione delle varietà orientabili. **57** #4182
**Williams, Gareth** On the geodesics of a manifold having a linear connection. **52** #4303
**Zelins′kiĭ, Ju. B.** Certain homeomorphism criteria for a mapping of domains of Euclidean space. (Russian) **53** #9224
Certain problems of A. Kosiński (Fund. Math. **46** (1958), 47–59). (Russian) **52** #11929

Secondary classifications:

**Asada, Akira** Generalized vector field and its local integration. (**48** #3075)
**Berstein, Israel** (*with* Edmonds, Allan L.;) The degree and branch set of a branced covering. (**57** #13908)
**Brown, Marianne S.** The homeomorphism group of a three-dimensional polyhedron is locally contractible. (**53** #11635)
**Cauty, Robert** Un contre-exemple concernant les rétractions dans les variétés non paracompactes. (**49** #3906)

**Dydak, Jerzy** On elementary maps. (**51** #6696)

**Edmonds, Allan L.**; *See* **Berstein, Israel**, (**57** #13908)

**Faust, D. D.** The existence of polar non-degenerate functions on a topological manifold. (**46** #4550)

**Husseini, S. Y.** The products of manifolds with the f.p.p. need not have the f.p.p. (**56** #13203)

**Kirby, Robion C.** (*with* Scharlemann, Martin G.) A curious category which equals TOP. (**51** #9072)

**Lashof, Richard** The tangent bundle of a topological manifold. (**47** #2605)

**Mather, John N.** Stable map-germs and algebraic geometry. (**45** #5141)

**Scharlemann, Martin G.** *See* **Kirby, Robion C.**, (**51** #9072)

## 57Bxx Generalized manifolds [See also 18F15.]

### 57B05 Local properties

**Bryant, J. L.** (*with* Lacher, R. C.) Blowing up homology manifolds. **57** #7610

**Cannon, James W.** Taming codimension-one generalized submanifolds of $S^n$. **58** #18469

**Lacher, R. C.** *See* **Bryant, J. L.**, **57** #7610

**Latour, François** Résolutions de variétés d'homologie rationnelle. Existence de résolutions. (English summary) **52** #1706

**Martin, N.** Transverse regularity for maps of homology manifolds. **48** #1241

**Maunder, C. R. F.** Improving the general-position properties of homology manifolds. **47** #9633

Secondary classifications:

**Stone, David A.** ★Stratified polyhedra. (**51** #9074)

### 57B10 Poincaré duality spaces

**Andrews, Peter B.** The genus of a closed simply connected manifold. **56** #6665

**Browder, William** Poincaré spaces, their normal fibrations and surgery. **48** #5086

**Brumfiel, Gregory W.** (*with* Morgan, John W.) Homotopy theoretic consequences of N. Levitt's obstruction theory to transversality for spherical fibrations. **55** #4187

(*with* Milgram, R. James) Normal maps, covering spaces, and quadratic functions. **57** #10708

**Chazin, Robert L.** Stable thickenings in the homotopy category. **52** #1707

**Cohen, Joel M.** A note on Poincaré 2-complexes. **45** #9333

Poincaré 2-complexes. I. **47** #1065

**Dyer, Eldon** (*with* Vasquez, A. T.) Some properties of two-dimensional Poincaré duality groups. **54** #8648

**Hodgson, Jonathan P. E.** Subcomplexes of Poincaré complexes. **50** #14760

General position in the Poincaré duality category. **49** #8024

Trivializing spherical fibrations and embeddings of Poincaré complexes. **57** #13961

**Jones, Lowell Edwin** Patch spaces: a geometric representation for Poincaré spaces. **47** #4269 (E **52** #11930)

Corrections for: "Patch spaces: a geometric representation for Poincaré spaces" (Ann. of Math. (2) 97 (1973), 306–343). **52** #11930

**Levitt, Norman** Poincaré duality cobordism. **47** #2611

A general position theorem in the Poincaré duality category. **45** #9337

Applications of Poincaré duality spaces to the topology of manifolds. **45** #4419

On a $\Sigma$-spectrum related to $G/\mathrm{Top}$. **57** #13962

**Masson, Philippe** Théorèmes de plongement pour les complexes de Poincaré. **46** #2685

**McCrory, Clint** A characterization of homology manifolds. **56** #3846

**Milgram, R. James** *See* **Brumfiel, Gregory W.**, **57** #10708

**Miščenko, A. S.** Surgeries of Poincaré complexes. (Russian) **45** #2715

**Morgan, John W.** *See* **Brumfiel, Gregory W.**, **55** #4187

**Morita, Shigeyuki** On the Pontrjagin square and the signature. **46** #899

**Vasquez, A. T.** *See* **Dyer, Eldon**, **54** #8648

Secondary classifications:

**Bieri, Robert** Gruppen mit Poincaré-Dualität. (**50** #4777)

**Bredon, Glen E.** Fixed point sets of actions on Poincaré duality spaces. (**48** #9708)

**Browder, William** Manifolds and homotopy theory. (**54** #3719)

**Cohen, Joel M.** Poincaré 2-complexes. II. (**58** #7597)

**Frank, David** The signature mod 8. (**48** #7301)

**Freedman, Michael H.** (*with* Taylor, Lawrence) $\Lambda$-splitting 4-manifolds. (**56** #1329)

**Hodgson, Jonathan P. E.** On isolated fixed points of groups actions on Poincaré complexes. (**51** #1857)

**Levitt, Norman** Homotopy equivalences which are cellular at the prime 2. (**47** #7755)

**Maunder, C. R. F.** General position theorems for homology manifolds. (**45** #6007)

**Quinn, Frank** Surgery on Poincaré and normal spaces. (**45** #6014)

**Schafer, James A.** Poincaré complexes and one-relator groups. (**56** #15791)

**Skljarenko, E. G.** On the theory of generalized manifolds. (Russian) (**45** #1170)

**Šlosman, S. B.** Smooth structures on Poincaré complexes. (Russian) (**48** #5102)

**Strebel, Ralph** A remark on subgroups of infinite index in Poincaré duality groups. (**56** #15793)

**Takahashi, Hideo** Degrees of maps and homotopy type. (**55** #9077)

**Taylor, Lawrence** *See* **Freedman, Michael H.**, (**56** #1329)

### 57B99 None of the above, but in this section

**Adachi, Masahisa** Homology submanifolds and homology classes of a homology manifold. **50** #8540

**Bognár, Mátyás** On generalized manifolds. **50** #14761

**Browder, William** The Kervaire invariant, products and Poincaré transversality. **48** #5087

**Bryant, J. L.** (*with* Lacher, R. C.) Resolving zero-dimensional singularities in generalized manifolds. **58** #2830

**Bykov, V. M.** Homology and cohomology spheres. (Russian) **53** #1600

**Hass, Dennis C.** Recognizing manifolds among generalized manifolds. **45** #4426

**Lacher, R. C.** *See* **Bryant, J. L.**, **58** #2830

**Matsui, Akinori** Transversality theorem for homology manifolds and representation o homology classes of homology manifolds. **52** #15482

**Mitchell, W. J. R.** A problem of Bredon concerning homology manifolds. **57** #13963

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**Fáry, István** Absolute subcomplexes. (**57** #7576)

**Galewski, David E.** (*with* Stern, Ronald J.) The relationship between homology an topological manifolds via homology transversality. (**56** #3847)

**Martin, N.** On the difference between homology and piecewise-linear bundles. (**47** #2613)

**Morel, Francis** Type d'homotopie rationnelle des $Q$-variétés et formes simpliciale basiques. (English summary) (**56** #1326)

**Scharlemann, Martin G.** Thoroughly knotted homology spheres. (**56** #1322)

**Stern, Ronald J.** *See* **Galewski, David E.**, (**56** #3847)

**Švedov, I. A.** On P. S. Aleksandrov's obstruction theorem. (Russian) (**58** #24247)

**Waldhausen, Friedhelm** Algebraic $K$-theory of generalized free products. I, II. (**58** #16845a)

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## 57Cxx PL-topology

**(Postnikov, M. M.)** *See* **Rourke, C. P.; et al.**, **50** #5803

**Rourke, C. P.** (*with* Sanderson, Brian J.) ★Introduction to piecewise-linear topology. **50** #3236

(*with* Sanderson, Brian J.) ★**Введение в кусочно линейную топологию.** (Russian) [Introduction to piecewise-linear topology] **50** #5803

**Sanderson, Brian J.** *See* **Rourke, C. P.**, **50** #3236 *and* **Rourke, C. P.**, **50** #5803

**(Savel'ev, I. V.)** *See* **Rourke, C. P.; et al.**, **50** #5803

### 57C05 The general topology of complexes

**Akin, Ethan** Transverse cellular mappings of polyhedra. **48** #5088

**Alder, Michael D.** Inverse limits of simplicial complexes. **50** #8541

**Baddeley, Adrian** The knotted hexagon. **57** #4183

**Berkowitz, H. W.** (*with* Roy, Prabir) General position and algebraic independence. **53** #9225

**Cockcroft, W. H.** (*with* Moss, R. M. F.) On the two-dimensional realisability of chain complexes. **52** #1708

**Connelly, Robert** A flexible sphere. **58** #13055

**Doyle, P. H.** On monotone unions of closed $n$-cells. **46** #4539

**Dyer, Micheal N.** Homotopy trees: essential height and roots. **53** #9226

**Edwards, David A.** (*with* Geoghegan, Ross) Shapes of complexes, ends of manifolds, homotopy limits and the Wall obstruction. **51** #11525 (E **54** #3693)

(*with* Geoghegan, Ross) The Wall obstruction in shape and pro-homotopy, with applications. **51** #11526

**Fadell, Edward R.** A remark on simple path fields in polyhedra of characteristic zero. **48** #7294

**Farrell, F. Thomas** (*with* Taylor, Laurence R.; Wagoner, John B.) The Whitehead theorem in the proper category. **48** #12545

**Fáry, István** Sous-complexes absolus. (English summary) **54** #8649

**Fritsch, Rudolf** Charakterisierung semisimplizialer Mengen durch Unterteilung und Graphen. (English summary) **45** #2693

**Geoghegan, Ross** *See* **Edwards, David A.**, **51** #11525 (E **54** #3693) *and* **Edwards, David A.**, **51** #11526

**Gluck, Herman** Almost all simply connected closed surfaces are rigid. **53** #4074

**Harzheim, Egbert** A combinatorial theorem related to the Jordan-Brouwer separation theorem. **51** #11527

**Homenko, M. P.** (*with* Ostroverhiĭ, M. O.) On the question of the additivity of the genus of graphs. (Russian. English summary) **53** #1601

**Johnson, F. E. A.** A triangulation criterion. **58** #18470

**Kapoor, S. F.** Invert sets in complexes and their suspensions. **49** #3952

**Kleinschmidt, Peter** Konvexe Realisierbarkeit symmetrischer Sphären. **57** #13964

**Köhler, Egmont** Eine kombinatorische Eigenschaft des $n$-dimensionalen Würfels. **50** #1249

**Lefschetz, Solomon** ★Applications of algebraic topology. **58** #13056

**Lickorish, W. B. Raymond** An improbable collapse. **47** #1067

**Moise, Edwin E.** Cloverleaf representations of simply connected 3-manifolds. **50** #3237

**Moss, R. M. F.** *See* **Cockcroft, W. H.**, **52** #1708

**Okamoto, Sigeru** Partially ordered sets and semi-simplicial complexes. I. General theory. **45** #1152a

Partially ordered sets and semi-simplicial complexes. II. Regular complexes. **45** #1152b

**Ostroverhiĭ, M. O.** *See* **Homenko, M. P.**, **53** #1601

**Pachner, Udo** Bistellare Äquivalenz kombinatorischer Mannigfaltigkeiten. **58** #7641

**Roy, Prabir** *See* **Berkowitz, H. W.**, **53** #9225

**Schneider, Rolf** Ein kombinatorisches Analogon zum Satz von Gauss-Bonnet. **58** #13057

**Slagle, Johnnie G.** Combinatorial theory of local complexes. **53** #4075

**Taylor, Laurence R.** *See* **Farrell, F. Thomas; et al.**, **48** #12545

**Wadler, Philip L.** On pairs of nonintersecting faces of cell complexes. **53** #4076

**Wagoner, John B.** *See* **Farrell, F. Thomas; et al.**, **48** #12545

**Wall, C. T. C.** Pairs of relative cohomological dimension one. **48** #1242

**Wegner, Gerd** $d$-collapsing and nerves of families of convex sets. **51** #11528

**Weinstein, Jack** Isotopy invariants of compact polyhedra. (Romanian. English summary) **54** #6147

On the uniqueness of some general combinatorial invariants of finite simplicial complexes. **57** #7611

**Whitley, W. Thurmon** Deleted products of spaces which are unions of two simplexes. **50** #11251

**Wright, Perrin** On the collapsibility of $K \times I^m$. **45** #9338

Secondary classifications:

**Blass, Józef** (*with* Holsztyński, Włodzimierz) Cubical polyhedra and homotopy. (Italian summary) (**49** #8022)

(*with* Holsztyński, Włodzimierz) Cubical polyhedra and homotopy. III, IV. (Italian summaries) (**51** #14072)

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**Bolker, Ethan D.** Simplicial geometry and transportation polytopes. (**54** #112)

**Borsuk, Karol** On several problems of the theory of shape. (**51** #9015)

**Brown, Edward M.** Proper homotopy theory in simplicial complexes. (**50** #8513)

**Cohen, Joel M.** Complexes dominated by a 2-complex. (**57** #1470)

Aspherical 2-complexes. (**58** #18405)

**Crapo, Henry H.** (*with* Rota, Gian-Carlo) Simplicial geometries. (**58** #27571)

**Demers, Luc** La structure des copolyèdres au sens de Stamm. (**53** #6545)

**Dunwoody, M. J.** The homotopy type of a two-dimensional complex. (**54** #13893)

**Dyer, Micheal N.** Homotopy trees for periodic groups. (**50** #14734)

**Edwards, David A.** (*with* Geoghegan, Ross) Correction to: "Shapes of complexes, ends of manifolds, homotopy limits and the Wall obstruction" (Ann. of Math. (2) **101** (1975), 521–535). (**54** #3693)

**Efremovič, V. A.** (*with* Rudjak, Ju. B.) The Descartes-Euler characteristic. (Russian) (**58** #31063)

**Fisk, Steve** Geometric coloring theory. (**58** #16362)

**Geoghegan, Ross** *See* **Edwards, David A.**, (**54** #3693)

**Goldstein, Richard Z.** (*with* Turner, Edward C.) Stiefel-Whitney homology classes of quasi-regular cell complexes. (**57** #7617)

**Goresky, R. Mark** (*with* MacPherson, Robert D.) La dualité de Poincaré pour les espaces singuliers. (English summary) (**55** #13408)

**Gray, John W.** Coherence for the tensor product of 2-categories, and braid groups. (**54** #378)

**Ho, Chung Wu** On certain homotopy properties of some spaces of linear and piecewise linear homeomorphisms. I, II. (**48** #1252)

**Holsztyński, Włodzimierz** (*with* Blass, Józef) Cubical polyhedra and homotopy. (Italian summary) (**50** #8505)

*See also* **Blass, Józef**, (**49** #8022) *and* **Blass, Józef**, (**51** #14072)

**Hosokawa, Hiroshi** Infinite expansions for locally finite complexes. (**49** #9841)

**Jucovič, Ernest** On face-vectors and vertex-vectors of cell-decompositions of orientable 2-manifolds. (**55** #5478)

**Levitt, Norman** (*with* Rourke, C. P.) The existence of combinatorial formulae for characteristic classes. (**58** #13063)

**Macdonald, I. G.** Polynomials associated with finite cell-complexes. (**45** #7594)

**MacPherson, Robert D.** *See* **Goresky, R. Mark**, (**55** #13408)

**Maffei, John S.** On $\|^*(\overline{G}_s, q; R|Z)$, range group of some Chern-Simons invariants. (**51** #14073)

**Mardešić, Sibe** Decreasing sequences of cubes and compacta of trivial shape. (**46** #870)

**Pachner, Udo** Flache Einbettungen geschlossener Mannigfaltigkeiten der Kodimension 1 in Randkomplexe konvexer Polytope. (**58** #30749)

**Piccinini, Renzo A.** ★CW-complexes, homology theory. (**50** #14731)

**Rota, Gian-Carlo** *See* **Crapo, Henry H.**, (**58** #27571)

**Rourke, C. P.** *See* **Levitt, Norman**, (**58** #13063)

**Rudjak, Ju. B.** *See* **Efremovič, V. A.**, (**58** #31063)

**Schirmer, Helga** Fixed point sets of polyhedra. (**50** #5771)

Mappings of polyhedra with prescribed fixed points and fixed point indices. (**54** #1204)

**Schwartz, Marie-Hélène** Théorème d'approximation simpliciale lié à une stratification. (**49** #11524)

**Skordev, Genčo S.** Rouché's theorem. (Russian. English summary) (**55** #4199)

**Sperner, Emanuel** Über die kombinatorischen Grundlagen gewisser simplizialer Sätze. (**49** #4787)

Combinatorics of valuated complexes. (Italian summary) (**58** #253)

**Turner, Edward C.** *See* **Goldstein, Richard Z.**, (**57** #7617)

**Waggoner, Roger** A method of combining fixed points. (**53** #6527)

**Watanabe, Tadashi** Shape classifications for complex projective space-like and wedges of $n$-spheres-like continua. (**50** #14650)

## 57C10 Simple homotopy type, Whitehead torsion, Reidemeister-Franz torsion, etc.

**Anderson, Douglas R.** A note on the Whitehead torsion of a bundle modulo a subbundle. **48** #1243

The obstruction to the finiteness of the total space of a flat bundle. **48** #12546

The Whitehead torsion of a fiber-homotopy equivalence. **49** #8025

**Bak, Anthony** The involution on Whitehead torsion. **56** #9536

**Brown, Morton** (*with* Cohen, Marshall M.) A proof that simple-homotopy equivalent polyhedra are stably homeomorphic. **50** #5805

**Cappell, Sylvain E.** On connected sums of manifolds. **50** #11252

**Casson, Andrew** Whitehead groups of free products with amalgamation. **54** #11338

**Chapman, T. A.** Cell-like mappings. **52** #4304

Topological invariance of Whitehead torsion. **52** #11931

Topological classification of simple homotopy equivalences. **55** #4188

**Cohen, Marshall M.** ★A course in simple-homotopy theory. **50** #14762

Whitehead torsion, group extensions, and Zeeman's conjecture in highdimensions. **55** #9105

*See also* **Brown, Morton**, **50** #5805

**Curtis, Douglas W.** (*with* Schori, R. M.) Hyperspaces which characterize simple homotopy type. **52** #15483

**Dyer, Micheal N.** (*with* Sieradski, Allan J.) Trees of homotopy types of two-dimensional CW-complexes. I. **51** #14074

**Farrell, F. Thomas** (*with* Wagoner, John B.) Infinite matrices in algebraic $K$-theory and topology. **47** #7731a

(*with* Wagoner, John B.) Algebraic torsion for infinite simple homotopy types. **47** #7731b

(*with* Hsiang, Wu Chung) Manifolds with $\pi_i = G \times \alpha T$. **52** #6726

**Hatcher, Allen E.** Higher simple homotopy theory. **52** #4305

**Heinrich, E.** (*with* Metzler, Wolfgang) Die Werte der Franz-Reidemeister-Torsion bei torsionsberandenden Mannigfaltigkeiten. **52** #6727

**Hsiang, Wu Chung** *See* **Farrell, F. Thomas**, **52** #6726

**Illman, Sören** Whitehead torsion and group actions. **51** #14075

**Kobayashi, Kazuaki** Finding a homeomorphism between almost homeomorphic manifolds. **51** #1835

**Kušel′man, M. S.** Duality for the Reidemeister torsion of nonacyclic complexes. (Russian) **53** #6573

**Kwun, Kyung Whan** Transfer homomorphisms of Whitehead groups of some cyclic groups. II. **51** #14076

**Metzler, Wolfgang** *See* **Heinrich, E.**, **52** #6727

**Sanderson, Brian J.** The simplicial extension theorem. **51** #4259

**Schori, R. M.** *See* **Curtis, Douglas W.**, **52** #15483

**Sieradski, Allan J.** Combinatorial isomorphisms and combinatorial homotopy equivalences. **53** #9227

*See also* **Dyer, Micheal N.**, **51** #14074

**Šlosman, S. B.** Submanifolds of codimension one and a simple homotopy type. (Russian) **50** #1250

**Swarup, G. Ananda** Pseudo-isotopies of $S^3 \times S^1$. **45** #2717

**Turaev, V. G.** The Alexander polynomial of a three-dimensional manifold. (Russian) **52** #4306

Reidemeister torsion and the Alexander polynomial. (Russian) **55** #6438

Reidemeister torsion and group invariants of three-dimensional manifolds. (Russian. English summary) **55** #13433

**Wagoner, John B.** *See* **Farrell, F. Thomas**, **47** #7731a *and* **Farrell, F. Thomas**, **47** #7731b

**Wright, Perrin** Formal 3-deformations of 2-polyhedra. **48** #9730

Secondary classifications:

**Anderson, Douglas R.** (*with* Hsiang, Wu Chung) Extending combinatorial PL structures on stratified spaces. (**54** #1235)

**Brahman, A. L.** Attaching a boundary to a regular covering of a closed manifold. (Russian) (**53** #9259)

**Chapman, T. A.** Compact Hilbert cube manifolds and the invariance of Whitehead torsion. (**49** #11518)

Concordances of noncompact Hilbert cube manifolds. (**53** #11616)

Simple homotopy theory for ANR's. (**58** #18414)

**Farrell, F. Thomas** The obstruction to fibering a manifold over a circle. (**54** #11355)

**Haršiladze, A. F.** Manifolds of the homotopy type of a product of two projective spaces. (Russian) (**51** #11544)

**Hatcher, Allen E.** (*with* Lawson, Terry C.) Stability theorems for "concordance implies isotopy" and "$h$-cobordism implies diffeomorphism". (**54** #3721)

**Hsiang, Wu Chung** *See* **Anderson, Douglas R.**, (**54** #1235)

**Huneke, John Philip** A minimum-vertex triangulation. (**58** #327)

**Jaco, William** Geometric realizations for free quotients. (**47** #5118)

**Kervaire, Michel A.** ★Lectures on the theorem of Browder and Novikov and Siebenmann's thesis. (**49** #3989)

**Lawson, Terry C.** Inertial $h$-cobordisms with finite cyclic fundamental group. (**50** #11279)

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**Vo Thanh Liem** Some cellular subsets of the spheres. **56** #16641

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**Barnette, David W.** Graph theorems for manifolds. (**50** #12814)

(*with* Gannon, D.) Manifolds with few vertices. (**54** #13926)

**Brown, Robert F.** (*with* Stern, Ronald J.) The number of roots in a simply-connected $H$-manifold. (**46** #6347)

**Cutler, William H.** A triangulation theorem for $F$-manifolds. (**46** #6393)

**Fisk, Steve** Combinatorial structure on triangulations. I. The structure of four colorings. (**49** #108)

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**Garey, Michael R.** (*with* Johnson, David Stifler; Preparata, Franco P.; Tarjan, Robert Endre) Triangulating a simple polygon. (**58** #271)

**Hironaka, Heisuke** Triangulations of algebraic sets. (**51** #10331)

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**Johnson, F. E. A.** A triangulation criterion. (**58** #18470)

**Mara, Patrick Scott** Triangulations for the cube. (**53** #10624)

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Correction: "Pseudocobordism groups" (Spanish) (Rev. Real Acad. Ci. Exact. Fís. Natur. Madrid **69** (1975), no. 1, 121–147). **56** #13226b

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**Smith, Larry** A note on annihilator ideals of complex bordism classes. **46** #8233

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**Buoncristiano, Sandro** (*with* Rourke, C. P.; Sanderson, Brian J.) ★A geometric approach to homology theory. (**54** #1234 (EA **54**) )

**Hajduk, B.** Comparing handle decompositions of homotopy equivalent manifolds. (**56** #9554)

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**Anderson, Douglas R.** (*with* Hsiang, Wu Chung) Extending combinatorial PL structures on stratified spaces. **54** #1235

**Barnette, David W.** (*with* Gannon, D.) Manifolds with few vertices. **54** #13926

**Bliznjakov, N. M.** On the problem of the algebraic computation of the index of plane fields. (Russian) **58** #24326

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**Ichiraku, Shigeo** (*with* Kato, Mitsuyoshi) On higher-dimensional strings of codimension two. **47** #5881

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**Anderson, Douglas R.** (*with* Hsiang, Wu Chung) The functors $K_{-1}$ and pseudo-isotopies of polyhedra. (**55** #13447)

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**Gagliardi, Carlo** Spezzamenti alla Heegaard per varietà $n$-dimensionali. (English summary) (**55** #9108)

**Gauld, David B.** $\mathrm{Pl}_k$ is not locally contractible if $k>4$. (**49** #8045 (E **54** #8681) )

Correction: “$PL_k$ is not locally contractible if $k > 4$” (Math. Chronicle **2** (1972/73), 125–130). (**54** #8681)

**Hsiang, Wu Chung** *See* **Anderson, Douglas R.**, (**55** #13447)

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**Siebenmann, Laurence C.** *See* **Scharlemann, Martin G.**, (**51** #9075) *and* **Scharlemann, Martin G.**, (**51** #11533)

**Steinberg, Leon** *See* **Altshuler, Amos**, (**54** #11174)

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**Maxwell, J. W.** Obstructions to embedding $n$-manifolds in $(2n-1)$-manifolds. **47** #9634

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**Shaneson, Julius L.** Spines and spinelessness. **53** #4080

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**Starbird, Michael** *See* **Bing, R. H.**, **57** #17659

**Stern, Ronald J.** *See* **Galewski, David E.**, **56** #3847

**Takens, Floris** *See* **Banchoff, Thomas F.**, **51** #14079

**Ummel, Brian R.** Imbedding classes and $n$-minimal complexes. **47** #5883

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**Vrabec, Jože** Compact submanifolds of homology 3-spheres. **50** #8543

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**Appel, Kenneth I.** (*with* Haken, Wolfgang) The existence of unavoidable sets of geographically good configurations. (**52** #13458)

**Cappell, Sylvain E.** Manifolds with fundamental group a generalized free product. I. (**50** #8562 (EA **50**) )

**Childress, J. A.** Restricting isotopies of spheres. (**47** #5882)

**Daigle, R. J.** (*with* Feustel, C. D.) Essential maps and embeddings of annuli in nonorientable $M^3$. (**52** #4291)

**Feustel, C. D.** Knots and links in irreducible $M^3$. (**57** #1499)

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**Geoghegan, Ross** On spaces of homeomorphisms, embeddings, and functions. II. The piecewise linear case. (**48** #7311)

**Haken, Wolfgang** *See* **Appel, Kenneth I.**, (**52** #13458)

**Hausmann, Jean-Claude** Plongements de sphères d’homologie. (**47** #4276)

**Homenko, M. P.** (*with* Javors′kiĭ, E. B.) One-component imbeddings of graphs in orientable 2-manifolds. (Russian. English summary) (**52** #13454)

**Javors′kiĭ, E. B.** *See* **Homenko, M. P.**, (**52** #13454)

**Kuiper, Nicolaas H.** A generalisation of convexity; open problems. (**57** #17571)

**Ladegaillerie, Yves** Classification topologique des plongements des 1-complexes compacts dans les surfaces. (**50** #14758)

**Masson, Philippe** Théorèmes de plongement pour les complexes de Poincaré. (**46** #2685)

**Ostroverhiĭ, M. O.** On the question of the $n$-imbeddability of graphs into 2-manifolds. (Russian) (**58** #5317)

**Pengelley, David** Self-dual orientable embeddings of $K_n$. (**51** #5357)

**Rourke, C. P.** (*with* Sullivan, Dennis) On the Kervaire obstruction. (**46** #4546)

**Rushing, T. Benny** Geometrical arguments concerning two-sided submanifolds, flat submanifolds and pinched bicollars. (**45** #4430)

**Scharlemann, Martin G.** Isotopy and cobordism of homology spheres in spheres. (**57** #4180)

**Stern, Ronald J.** Classification theorems for parameterized families of smooth or piecewise linear manifold structures respecting a submanifold. (**55** #6436)

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**Ummel, Brian R.** The product of nonplanar complexes does not imbed in 4-space. (**57** #17619)

**Venema, Gerard A.** A topological disk in a 4-manifold can be approximated by piecewise linear disks. (**55** #4192)

**Waldhausen, Friedhelm** Algebraic $K$-theory of generalized free products. I, II. (**58** #16845a)

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**Bothe, Hans Günter** Imbeddability of certain 3-dimensional manifolds and polyhedra in $S^3$. **50** #14765

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**Cohen, Marshall M.** Dimension estimates in collapsing $X \times I^q$. **51** #11530

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**Connelly, Robert** *See* **Berstein, Israel; et al., 57** #7614
**Craggs, Robert** Canonical neighborhoods for topologically embedded polyhedra. **52** #15486
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**Vrabec, J.** Isotopies of PL manifolds keeping a subpolyhedron fixed. (Slovenian summary) **54** #11339

Secondary classifications:

**Maxwell, J. W.** Regular neighborhoods of immersed manifolds. (**50** #11253)
**Moise, Edwin E.** Cloverleaf representations of simply connected 3-manifolds. (**50** #3237)

## 57C45 Knots and links (in high dimensions) [for the low-dimensional case, see 55A25.]

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**Cappell, Sylvain E.** (*with* Shaneson, Julius L.) There exist inequivalent knots with the same complement. **54** #1238
**DeGeorge, David L.** (*with* Reddy, William L.) A branch set linking theorem. **54** #8651
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**Eckmann, Beno** Aspherical manifolds and higher-dimensional knots. **54** #1239
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**Kato, Mitsuyoshi** (*with* Matsumoto, Yukio) Simply connected surgery of submanifolds in codimension two. I. **46** #6369 (EA **47**)
**Kauffman, Louis H.** Link manifolds and periodicity. **48** #7296
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**Viro, O. Ja.** Branched coverings of manifolds with boundary, and invariants of links. (Russian) **51** #6832
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**Akbulut, Selman** On 2-dimensional homology classes of 4-manifolds. (**55** #6452)
**Bloom, Thomas** Singularités des hypersurfaces. I. (**53** #860)
**Brieskorn, E.** Sur les groupes de tresses [d'après V. I. Arnol'd]. (**54** #10660)
*See also* **Bloom, Thomas**, (**53** #860)

**Burghelea, Dan** Differentiable knots in Hilbert space and a conjecture of R. D. Anderson. (**46** #6394)

**Cappell, Sylvain E.** (*with* Shaneson, Julius L.) Submanifolds, group actions and knots. I, II. (**52** #4313)

Groups of singular Hermitian forms. (**50** #14800)

(*with* Shaneson, Julius L.) Nonlocally flat embeddings, smoothings, and group actions. (**47** #9635)

(*with* Shaneson, Julius L.) Topological knots and knot cobordism. (**47** #9632)

**Domergue, Michel** Extension du lemme de Dehn. (English summary) (**58** #18409)

**Durfee, Alan H.** The characteristic polynomial of the monodromy. (**53** #445)

Bilinear and quadratic forms on torsion modules. (**58** #506)

**Dyer, Eldon** (*with* Vasquez, A. T.) The sphericity of higher dimensional knots. (**48** #5051)

**Erle, Dieter** On unitary and symplectic knot manifolds. (**50** #11297)

**Feustel, C. D.** Isotopic unknotting in $F \times I$. (**47** #4264)

**González Acuña, Francisco J.** Homomorphs of knot groups. (**52** #576)

**Hirsch, Ulrich** Über offene Abbildungen auf die 3-Sphäre. (**50** #14755)

**Jordan, Steven L.** (*with* Kauffman, Louis H.) Differential geometry of the torus and torus knots. (**54** #1126)

**Kato, Mitsuyoshi** Topological resolution of singularities. (**49** #3959)

A classification of simple spinnable structures on a 1-connected Alexander manifold. (**50** #14770)

Partial Poincaré duality for $k$-regular spaces and complex algebraic sets. (**56** #8900)

**Kauffman, Louis** Cyclic branched cover and $0(n)$-manifolds. (**55** #13456)

**Kauffman, Louis H.** Link manifolds. (**50** #3256)

*See also* **Jordan, Steven L.**, (**54** #1126)

**Kawauchi, Akio** $\tilde{H}$-cobordism. I. The groups among three dimensional homology handles. (**55** #6450)

**Kreck, Matthias** Knots and diffeomorphisms. (**57** #13981)

**Lambert, Howard** Unknotting links in $S^3$ by maps. (**54** #8637)

**Lannes, Jean** Formes quadratiques d'enlacement sur l'anneau des entiers d'un corps de nombres. (**54** #231)

**Lê Dũng Tráng** Topologie des singularités des hypersurfaces complexes. (**50** #13593)

**Levine, Jerome** Semi-free circle actions on spheres. (**50** #3259)

**Levinson, Henry W.** Decomposable braids and linkages. (**48** #3034)

**Liang, Chao Chu** Browder-Livesay index invariant and equivariant knots. (**57** #1512)

**Matsumoto, Yukio** (*with* Sakamoto, Koichi) On the Milnor fiber, monodromy, and the characteristic polynomial. (Japanese) (**57** #16676)

The theory of surgery in codimension 2. (Japanese) (**58** #13084)

**Matumoto, Takao** On the signature invariants of a non-singular complex sesquilinear form. (**55** #10386)

**Milgram, R. James** On the Haefliger knot groups. (**47** #4277)

**(Milnor, John W.)** *See* **Bloom, Thomas**, (**53** #860)

**Moser, Louise E.** Elementary surgery along a torus knot. (**52** #4287)

**Neumann, Walter D.** Brieskorn complete intersections and automorphic forms. (**57** #3442)

**Popov, S. A.** Almost smooth two-dimensional submanifolds of four-dimensional manifolds, and some link invariants. (Russian) (**51** #1856)

**Sakamoto, Koichi** The Seifert matrices of Milnor fiberings defined by holomorphic functions. (**50** #14771)

Milnor fiberings and their characteristic maps. (**51** #8460)

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**Salanova, M.ª A.** The spectral sequence in the characterization of singularities. (Spanish. English summary) (**54** #5229)

**Sasaki, Shigeo** (*with* Takahashi, Toshio) Almost contact structures on Brieskorn manifolds. (**55** #1365)

**Scharf, Alois** ★Faserungen von Graphenmannigfaltigkeiten. (**54** #13920)

**Shaneson, Julius L.** *See* **Cappell, Sylvain E.**, (**47** #9632); **Cappell, Sylvain E.**, (**47** #9635) *and* **Cappell, Sylvain E.**, (**52** #4313)

**Smith, Justin R.** Complements of codimension-two submanifolds. The fundamental group. (**58** #18467)

**Sumners, D. W.** A note on an example of Poenaru. (**45** #4400)

(*with* Woods, J. M.) A short proof of finite monodromy for analytically irreducible plane curves. (**49** #7476)

**Takahashi, Toshio** *See* **Sasaki, Shigeo**, (**55** #1365)

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Specially spinnable manifolds. (**52** #6737)

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**Buoncristiano, Sandro** (*with* Rourke, C. P.; Sanderson, Brian J.) ★A geometric approach to homology theory. (**54** #1234 (EA **54**) )

**Marin, Alexis** La transversalité topologique. (**57** #10707)

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**Oleksiv, Ī. Ja.** The approximation of continuous curves by simple curves. (Russian) **54** #1236

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**Miller, Richard T.** Approximating codimension 3 embeddings. (**46** #6366)

**Perron, Bernard** Plongements en codimension supérieure ou égale à 2. (**46** #9998)

**Saint-Raymond, Jean** Approximation des sous-ensembles analytiques par l'intérieur. (English summary) (**51** #14009)

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**Edmonds, Allan L.;** (*with* Galewski, David E.) Codimension one fixed point sets. **53** #6577

**Fenn, Roger** Some generalizations of the Borsuk-Ulam theorem and applications to realizing homotopy classes by embedded spheres. **48** #12549

**Fuks, D. B.** *See* **Gel'fand, I. M.**, **49** #3958

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**Gel'fand, I. M.** (*with* Fuks, D. B.) PL foliations. (Russian) **49** #3958

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**Kawauchi, Akio** A partial Poincaré duality theorem for infinite cyclic coverings. **52** #15490

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**Kwun, Kyung Whan** (*with* Tollefson, Jeffrey L.) Involutions of 3-manifolds with almost tame fixed point sets are PL. **54** #6150
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**Levitt, Norman** Fiberings of manifolds and transversality. **47** #5885

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**Maxwell, J. W.** A class of manifolds covered by Euclidean space. **50** #1252

**Myung, Myung Mi** PL involutions of some 3-manifolds. **45** #4429

**Nakatsuka, Harunori** On representations of homology classes. **47** #2612

**Osborn, Howard** La géométrie différentielle dans la catégorie PL. (English summary) **48** #12550

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**Suzuki, Shin'ichi** On surfaces in 3-sphere: prime decompositions. **51** #14083

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**Walsh, John J.** Extending mappings to monotone mappings. **56** #16644

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**Edmonds, Allan L.;** (*with* Fintushel, Ronald) Singular circle fiberings. (**54** #13946)

**Fintushel, Ronald** *See* **Edmonds, Allan L.;**, (**54** #13946)

**Flaherty, Frank J.** Curvature measures for piecewise linear manifolds. (**46** #8149)

**Geoghegan, Ross** (*with* Haver, William E.) On the space of piecewise linear homeomorphisms of a manifold. (**53** #6599)

**Goldstein, Richard Z.** (*with* Turner, Edward C.) A formula for Stiefel-Whitney homology classes. (**54** #3724)

**Haver, William E.** *See* **Geoghegan, Ross**, (**53** #6599)

**Horvatić, Krešo** On piecewise linear topology. (Serbo-Croatian. English summary) (**45** #2714)

**Jones, Lowell Edwin** The converse to the fixed point theorem of P. A. Smith. (**45** #1159)

**Kwasik, Sławomir** A Lefschetz-type fixed point theorem for absolute neighbourhood retracts. (Russian summary) (**58** #18500)

**Kwun, Kyung Whan** Sense-preserving PL involutions of some lens spaces. (**46** #9963)

**Maunder, C. R. F.** Improving the general-position properties of homology manifolds. (**47** #9633)

**Penna, Michael A.** Differential geometry on simplicial spaces. (**52** #11968)

**Schlagbauer, H.** On the dimension of coincidence sets. (**46** #4522)

**Turner, Edward C.** *See* **Goldstein, Richard Z.**, (**54** #3724)

**Walsh, John J.** Monotone and open mappings onto *ANR's*. (**54** #13838)

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**Agoston, Max K.** Twenty years of differential topology: some highlights. **53** #4084

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**(Arakelov, S. Ju.)** *See* **Milnor, John W.; et al., 50** #5810

**(Blohin, A. A.)** *See* **Milnor, John W.; et al., 50** #5810

**Bourbaki, Nicolas** ★Дифференцируемые и аналитические многообразия. (Russian) [Differentiable and analytic manifolds] **51** #14084

**(Brouwer, L. E. J.)** *See* **Freudenthal, H., 46** #10001 *and* **Thom, René, 46** #10002

**Freudenthal, H.** Aperçu de l'oeuvre de M. R. Thom à l'occasion de la "Brouwer Memorial Lecture" donnée par M. R. Thom, le 25 août 1970. **46** #10001

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**Hauschild, Henning** Äquivariante Transversalität und äquivariante Bordismentheorien. (**53** #6601)

**Kuiper, Nicolaas H.** $C^1$-equivalence of functions near isolated critical points. (**54** #1282)

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**Martinet, Jean** ★Singularités des fonctions et applications différentiables. (**57** #4225)

**Mather, John N.** How to stratify mappings and jet spaces. (**56** #13259)

**Matsumoto, Yukio** On a class of deformations of holomorphic functions. (**48** #2419)

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**Roblin, V. V.** Orthogonal classification of families of linear mappings. (Russian) (**54** #11380)

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**Arrowsmith, D. K.** Products of flows. **49** #3983

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**López de Medrano, Santiago** Cobordism of diffeomorphisms of ($k$-1)-connected $2k$-manifolds. **51** #1847
**Miller, John Grier** Homotopy groups of diffeomorphism groups. **50** #14797
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**Wilson, F. Wesley, Jr.** Pasting diffeomorphisms of $\mathbf{R}^n$. **45** #4445

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**Anderson, Boyd** Diffeomorphisms with discrete centralizer. (**53** #6635)
  Centralisers of $C^\infty$ diffeomorphisms. (**54** #11403)
**Brickell, Frederick** The differentiability of transformations which preserve geodesics. (**56** #6563)
**Cretin, Michel** Invariance homotopique en $K$-théorie hermitienne. (**52** #534)
**Farrell, F. Thomas** (*with* Jones, Lowell Edwin) Examples of expanding endomorphisms on exotic tori. (**57** #14056)
**Grines, V. Z.** The topological conjugacy of diffeomorphisms of a two-dimensional manifold on one-dimensional orientable basic sets. I. (Russian) (**54** #6203)
**Harrison, Jenny** Unsmoothable diffeomorphisms. (**52** #9294)
  On unsmoothable diffeomorphisms. (**51** #6847)
**Hatcher, Allen E.** The second obstruction for pseudo-isotopies. (**46** #6395)
  (*with* Lawson, Terry C.) Stability theorems for "concordance implies isotopy" and "$h$-cobordism implies diffeomorphism". (**54** #3721)
**Hsiang, Wu Chung** On the codimension 1 isotopy problem. (**51** #9085)
**Husch, L. S.** Diffeomorphisms of 3-manifolds which are homotopy equivalent to $S^1$. (**56** #6661)
**Jones, Lowell Edwin** *See* **Farrell, F. Thomas**, (**57** #14056)
**Laudenbach, François** ★Topologie de la dimension trois: homotopie et isotopie. (**50** #8527)
**Lawson, Terry C.** *See* **Hatcher, Allen E.**, (**54** #3721)
**Liang, Chao Chu** Browder-Livesay index invariant and equivariant knots. (**57** #1512)
**Loday, Jean-Louis** Higher Whitehead groups and stable homotopy. (**52** #14000)
**Lukackiĭ, A. M.** Algebras of vector fields and diffeomorphism groups of compact manifolds. (Russian) (**49** #11529)
**Neumann, Dean A.** Dynamical systems with cross-sections. (**53** #11673)
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**Schultz, Reinhard** Circle actions on homotopy spheres bounding plumbing manifolds. **46** #8248
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**Shikata, Yoshihiro** On a distance function between differentiable structures. **53** #4096
**Thomas, Charles** On Poincaré 3-complexes with binary polyhedral fundamental group. **56** #13230
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**Wilkens, David L.** Closed $(s-1)$-connected $(2s+1)$-manifolds, $s=3,7$. **46** #6378

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**Amemiya, Ichiro** (*with* Masuda, Kazuo; Shiga, Kōji) Lie algebras of differential operators. (**51** #11594)
**Cappell, Sylvain E.** (*with* Shaneson, Julius L.) Submanifolds of codimension two and homology equivalent manifolds. (French summary) (**49** #11522)
**Donnelly, Harold** Spectral geometry and invariants from differential topology. (**51** #9133)
**Hausmann, Jean-Claude** Variétés avec une homologie et un groupe fondamental donnés. (English summary) (**55** #4189)
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**Masuda, Kazuo** *See* **Amemiya, Ichiro; et al.**, (**51** #11594)
**Moishezon, Boris** ★Complex surfaces and connected sums of complex projective planes. (**58** #10931)
**Naoum, Adil G.** On $TT$-manifold with homotopy type of $S^n \times S^k$. (**49** #11544)
**Neumann, Walter D.** $S^1$-actions and the $\alpha$-invariant of their involutions. (**47** #5893)
**Shaneson, Julius L.** *See* **Cappell, Sylvain E.**, (**49** #11522)
**Shiga, Kōji** *See* **Amemiya, Ichiro; et al.**, (**51** #11594)

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**Ando, Yoshifumi** A note on homotopy spheres. **48** #5099
  Examples of the manifolds $f^{-1}(0) \cap S^{2n+1}, f(Z) = Z_0^{a_0} + Z_1^{a_1} + \cdots + Z_n^{a_n}$. **50** #5822
**Goto, Midori** Homotopy $n$-spheres imbedded in $S^{n+2}$. **48** #5100
**Hamrick, Gary** *See* **Alexander, John P.; et al.**, **51** #1849
**Hausmann, Jean-Claude** Homology sphere bordism and Quillen plus construction. **57** #10713
**Hsiung, Chuan Chih** The generalized Poincaré conjecture on higher dimensional manifolds with boundary. **53** #14510
**Koestner, A.** Beispiele von Sphärenbündeln über $S^2$. **53** #9250
**Ku, Hsü Tung** (*with* Ku, Mei Chin) Rational Montgomery-Yang invariants and the extensions of free $S^1$ actions on homotopy spheres. **51** #1850
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**Schultz, Reinhard** $Z_2$-torus actions on homotopy spheres. **50** #14799
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**Alexander, John P.** (*with* Hamrick, Gary; Vick, James W.) Involutions on homotopy spheres. (**49** #9857)
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**Dennis, R. Keith** (*with* Keating, Michael E.; Stein, Michael R.) Lower bounds for the order of $K_2(\mathbf{Z}G)$ and $\mathbf{Wh}_2(G)$. (**54** #279)
**Frank, David** Irregular primes and integrality theorems for manifolds. (**53** #11626)
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**Hsiang, Wu Chung** (*with* Sharpe, Richard) Parametrized surgery and isotopy. (**58** #13091)
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**López de Medrano, Santiago** Invariant knots and surgery in codimension 2. (**54** #8653)

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**Naoum, Adil G.** On the groups of inertia of smooth manifolds. (**49** #3993)

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**Berstein, Israel** Some algebraic calculations of Wall groups for $Z_2$. **48** #5101

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**Cappell, Sylvain E.** (*with* Shaneson, Julius L.) On four dimensional surgery and applications. **46** #905

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**Frank, David** The signature mod 8. **48** #7301

**Freedman, Michael H.** Uniqueness theorems for taut submanifolds. **53** #11630

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**Kac, G. A.** Wall groups of finite groups, and *P*-signatures of manifolds. (Russian) **53** #14512

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**Kervaire, Michel A.** ★Lectures on the theorem of Browder and Novikov and Siebenmann's thesis. **49** #3989

**Lannes, Jean** (*with* Latour, François) Signature modulo 8 des variétés de dimension $4k$ dont le bord est stablement parallélisé. **55** #13449

**Latour, François** Chirurgie non simplement connexe. (d'après C. T. C. Wall). **54** #3720

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**Laudenbach, François** (*with* Poénaru, Valentin) A note on 4-dimensional handlebodies. **47** #5890

**Lees, J. Alexander** The surgery obstruction groups of C. T. C. Wall. **48** #3063

**Liang, Chao Chu** Involutions on homotopy spheres and their gluing diffeomorphisms. **55** #4215a (E **55** #4215b)

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**Loday, Jean-Louis** ★*K*-théorie algébrique et représentations de groupes. **54** #8675

**Lusztig, George** Novikov's higher signature and families of elliptic operators. **48** #1250

**Mandelbaum, Richard** (*with* Moishezon, Boris) On the topological structure of non-singular algebraic surfaces in $CP^3$. **53** #9251

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**Maumary, Serge** Proper surgery groups and Wall-Novikov groups. **51** #14107

**Maunder, C. R. F.** Surgery on homology manifolds. II. The surgery exact sequence and an application to fake tori. **54** #1260

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**Milgram, R. James** Surgery, $B_{PL}$, $B_{TOP}$ and the *PL* bordism rings. **48** #12565

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**Morita, Shigeyuki** The Kervaire invariant of hypersurfaces in complex projective spaces. **52** #6756

**Naoum, Adil G.** On *TT*-manifold with homotopy type of $S^n\times S^k$. **49** #11544

**Novikov, S. P.** Analogues hermitiens de la *K*-théorie. **55** #4216

**Pardon, William** Hermitian *K*-theory in topology: a survey of some recent results. **58** #7661

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**Miščenko, A. S.** Extraordinary homology theories: bordism and $K$-theory. (**55** #6411)
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**Morgan, John W.** (*with* Sullivan, Dennis) The transversality characteristic class and linking cycles in surgery theory. (**50** #3240)
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**Kahn, Peter J.** A note on topological Pontrjagin classes and the Hirzebruch index formula. (45 #1183)
**Labelle, Jacques** Le bordisme d'une théorie de l'homologie. (58 #7608)
**Lannes, Jean** (*with* Latour, François) Signature modulo 8 des variétés de dimension $4k$ dont le bord est stablement parallélisé. (55 #13449)
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**Ewing, John** (*with* Moolgavkar, Suresh; Smith, Larry; Stong, Robert E.) Stable parallelizability of lens spaces. (**57** #17641)

**Fomenko, A. T.** Multidimensional Plateau problems on Riemannian manifolds, and extraordinary homology and cohomology theories. I. (Russian) (**55** #6477)

**Frank, David** Irregular primes and integrality theorems for manifolds. (**53** #11626)

**Fujii, Michikazu** Corbordism theory with reality. (**54** #8611)

**Gate, M.** (*with* Whiston, George S.) Line-cobordism. (**49** #3976)

**Giambalvo, V.** Cobordism of line bundles with restricted characteristic class. (**50** #11284)

A relation in $H^*(MO\langle 8\rangle, Z^2)$. (**49** #3937)

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**Gozman, N. Ja.** Self-conjugate cobordism theory. (Russian) (**58** #31055)

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A universal isomorphism for $p$-typical formal groups and operations in Brown-Peterson cohomology. (**53** #6535)

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**Karras, U.** (*with* Kreck, Matthias; Neumann, Walter D.; Ossa, Erich) ★Cutting and pasting of manifolds; SK-groups. (**50** #14802)

**Koschorke, Ulrich** Line fields transversal to foliations. (**52** #4310)

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**Kričever, I. M.** *See* **Guseĭn-Zade, S. M.**, (**57** #13987)

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**Miller, Haynes R.** (*with* Wilson, W. Stephen) On Novikov's Ext$^1$ modulo an invariant prime ideal. (**55** #6410)

**Miščenko, A. S.** (*with* Solov′ev, Ju. P.) Infinite-dimensional representations of fundamental groups, and formulas of Hirzebruch type. (Russian) (**58** #13219)

**Moolgavkar, Suresh** *See* **Ewing, John; et al.**, (**57** #17641)

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**Ray, Nigel** (*with* Switzer, Robert M.; Taylor, Laurence R.) Normal structures and bordism theory, with applications to $M$Sp$_*$. (**57** #1505)

**Rudjak, Ju. B.** Connective $k$-theory, and bordism of manifolds with singularities. (Russian) (**51** #6782)

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**Shay, P. Brian** Erratum: "Representatives for $P$-typical curves" (J. Algebra **45** (1977), no. 1, 94–101). (**57** #6034)

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## 57Exx Topological transformation groups [See also 20E40, 22–XX, 54H15, 58D05.]

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### 57E05 Topological properties of groups of homeomorphisms

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**Brechner, Beverly L.** Topological groups which are not full homeomorphism groups. **45** #1141

**Brown, Marianne S.** The homeomorphism group of a three-dimensional polyhedron is locally contractible. **53** #11635

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**Edmonds, Allan L.;** Local connectivity of spaces of group actions. **52** #15509

**Erle, Dieter** On the homotopy groups of some equivariant automorphism groups of spheres. **52** #11959

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**Fathi, Albert** (*with* Visetti, Yves-Marie) Deformation of open embeddings of $Q$-manifolds. **54** #8680

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The homeomorphism group of a compact Hilbert cube manifold is an ANR. **57** #1521

**Friberg, Bjorn** Canonical isotopies in Euclidean space. **50** #14816

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**Gauld, David B.** $\mathrm{Pl}_k$ is not locally contractible if $k > 4$. **49** #8045 (E **54** #8681)

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**Geoghegan, Ross** (*with* Haver, William E.) On the space of piecewise linear homeomorphisms of a manifold. **53** #6599

**Gramain, André** Groupe des difféomorphismes et espace de Teichmüller d'une surface (d'après C. Earle et J. Eells). **54** #13945

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**Haver, William E.** Monotone mappings of a two-disk onto itself which fix the disk's boundary can be canonically approximated by homeomorphisms. **50** #3254

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**Ho, Chung Wu** On certain homotopy properties of some spaces of linear and piecewise linear homeomorphisms. I, II. **48** #1252

**Hsiang, Wu Chung** (*with* Sharpe, Richard) Parametrized surgery and isotopy. **58** #13091

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A simple proof that the space of orientation preserving transformations of an interval is homeomorphic to $l_2$. **56** #3865

**Keesling, James E.** The group of homeomorphisms of a solenoid. **47** #4284

(*with* Wilson, David C.) The group of *PL*-homeomorphisms of a compact *PL*-manifold is an $1\frac{1}{2}$-manifold. **51** #4288

**Kischka, P.** Zur Existenz von gleichmässig fastperiodischen Untertransformationsgruppen. **56** #9556

**Kurata, Masahiro** Homotopy groups of s.s. complexes of embeddings. **53** #1612

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**Schultz, Reinhard** Homotopy decompositions of equivariant function spaces. I. **53** #11636

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**Smith, Anthony** A topology on the space of PL homeomorphisms of a PL manifold. **52** #1740

**Thornton, Melvin C.** Spaces with given homeomorphism groups. **45** #1142

**Toruńczyk, Henryk** Homeomorphism groups of compact Hilbert cube manifolds which are manifolds. (Russian summary) **58** #24302

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**Wells, Robert** Concordance of diffeomorphisms and the pasting construction. **47** #7763

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**Davis, Michael** Examples of actions on manifolds almost diffeomorphic to $V_{n+1,2}$. (55 #4233)

**tom Dieck, Tammo** Homotopy-equivalent group representations. (58 #18498)

**Edmonds, Allan L.**; Deformations of group actions. (50 #14763)

**Gauger, Michael A.** Automorphisms compatible with group actions. (51 #5611)

**Grove, Edward Andrew** SU($n$) actions on manifolds with vanishing first and second integral Pontrjagin classes. (51 #6856)

**Halder, Heinz-Richard** Über Bahnen lokal kompakter Gruppen auf Flächen. (48 #3026)

**Hano, Jun-ichi** Einstein complete intersections in complex projective space. (52 #3586)

**Hempel, John** Free cyclic actions on $S^1 \times S^1 \times S^1$. (50 #14754)

**Hernández-Andrade, Horacio** A class of compact manifolds with positive Ricci curvature. (52 #1565)

**Illman, Sören** Approximation of simplicial *G*-maps by equivariantly non degenerate maps. (57 #13968)

**Kauffman, Louis H.** Link manifolds and periodicity. (48 #7296)

**Kawasaki, Tetsuro** Quotient spaces by finite reflection groups of hypersurfaces with isolated singularities. (Japanese) (58 #17196)

**Kim, Paik Kee** Periodic homeomorphisms of the 3-sphere and related spaces. (50 #3231)

**Koestner, A.** Beispiele von Sphärenbündeln über $S^2$. (53 #9250)

**Koriyama, Akira** On canonical stratifications. (46 #6241)

**Lee, Ronnie** (*with* Thomas, Charles) Free finite group actions on $S^3$. (47 #4265)

**Liang, Chao Chu** Involutions on homotopy spheres and their gluing diffeomorphisms. (55 #4215a (E 55 #4215b) )

Erratum to: "The involutions on homotopy spheres and their gluing diffeomorphisms" (Trans. Amer. Math. Soc. 215 (1976), 363–391). (55 #4215b)

Knots fixed by $Z_p$-actions, and periodic links. (58 #13060)

**Loos, Ottmar** Lie transformation groups of Banach manifolds. (45 #4460)

**López de Medrano, Santiago** Invariant knots and surgery in codimension 2. (54 #8653)

**Margulis, G. A.** The action of unipotent groups in a lattice space. (Russian) (45 #445)

**Orlik, Peter** (*with* Raymond, Frank) Actions of the torus on 4-manifolds. II. (50 #1274)

**Ouzilou, René** Groupes classiques de Banach. (45 #1203)

**Raymond, Frank** *See* **Orlik, Peter**, (50 #1274)

**Rothschild, Linda Preiss** Orbits in a real reductive Lie algebra. (50 #2271)

**Savel'ev, I. V.** Cyclic branched coverings and singularities of complex hypersurfaces. (Russian) (56 #1295)

**Scheerer, Hans** Transitive actions on Hopf homogeneous spaces. (45 #2086)

Restklassenräume kompakter zusammenhängender Gruppen mit Schnitt. (48 #4191)

**Sebastiani, Marcos** Une action exotique libre de $Z_5$ sur $S^5$. (47 #4279)

**Shaneson, Julius L.** *See* **Cappell, Sylvain E.**, (52 #15508); **Cappell, Sylvain E.**, (54 #6167) *and* **Cappell, Sylvain E.**, (58 #2819)

**Stepanov, N. V.** Fundamental properties of *E*-groups on the plane. (Russian) (45 #4462)

**Thomas, Charles** *See* **Lee, Ronnie**, (**47** #4265)
**Tollefson, Jeffrey L.** A 3-manifold admitting a unique periodic PL map. (**50** #3232)
The compact 3-manifolds covered by $S^2 \times R^1$. (**49** #11516)
Erratum to: "Periodic homeomorphisms of 3-manifolds fibered over $S^1$" (Trans. Amer. Math. Soc. **223** (1976), 223–234). (**58** #24272)
**West, James E.** Induced involutions on Hilbert cube hyperspaces. (**58** #24276)
**Willson, Stephen J.** The orbit space of a sphere by an action of $Z_{p^s}$. (**55** #1353)
**Yoshida, Tomoyoshi** Simply connected smooth 4-manifolds which admit nontrivial smooth $S^1$ actions. (**58** #13098)
**Zagier, Don Bernard** Higher dimensional Dedekind sums. (**50** #9801)
**Zvengrowski, Peter** Skew linear vector fields on spheres. (**45** #9329)

### 57E30 Discontinuous groups of transformations

**Alexander, John P.** (*with* Conner, Pierre; Hamrick, Gary) ★Odd order group actions and Witt classification of innerproducts. **58** #18509
**Conner, Pierre** (*with* Raymond, Frank) Deforming homotopy equivalences to homeomorphisms in aspherical manifolds. **57** #7629
*See also* **Alexander, John P.; et al.**, **58** #18509
**Duvall, Paul F.** (*with* Maxwell, J. W.) Tame $Z^2$-actions on $E^n$. **50** #8578
**Gray, William J.** Some remarks on transformation groups on spheres. **46** #8254
**Hamrick, Gary** *See* **Alexander, John P.; et al.**, **58** #18509
**Husch, L. S.** A homotopy theoretic characterization of the translation in $E^n$. **49** #4009
(*with* Row, W. H., Jr.) Translations and quasi-translations in $E^3$. **49** #6263
**Jones, Lowell Edwin** The converse to the fixed point theorem of P. A. Smith. I. **45** #4427
The converse to the fixed point theorem of P. A. Smith. II. **49** #4010 (E **54** #8686)
**López de Medrano, Santiago** ★Involutions on manifolds. **45** #7747
**Maxwell, J. W.** *See* **Duvall, Paul F.**, **50** #8578
**Nakaoka, Minoru** Continuous maps of manifolds with involution. I, II. **49** #8047
Finite groups which act freely on spheres. **50** #8579
**Raymond, Frank** *See* **Conner, Pierre**, **57** #7629
**Row, W. H., Jr.** *See* **Husch, L. S.**, **49** #6263
**Uchida, Kôji** (*with* Yoshihara, Hisao) Discontinuous groups of affine transformations of $C^3$. **53** #4106
**Yoshihara, Hisao** *See* **Uchida, Kôji**, **53** #4106

Secondary classifications:

**Duvall, Paul F.** (*with* Husch, L. S.) Regular properly discontinuous $Z^n$-actions on open manifolds. (**47** #7753)
**Hirzebruch, F.** Pontrjagin classes of rational homology manifolds and the signature of some affine hypersurfaces. (**49** #1525)
**Husch, L. S.** Semi-regular actions. (**50** #8481)
*See also* **Duvall, Paul F.**, (**47** #7753)
**Kosniowski, Czes** What the fixed points say about a $\mathbf{Z}/p$ manifold. (**49** #9858)
$\mathbf{Z}/p$ manifolds with isolated fixed points. (**49** #9859)
The equivariant bordism ring of $\mathbf{Z}/p$ manifolds with isolated fixed points. (**50** #11285)
**Kuiper, Nicolaas H.** The quotient space of $\mathbf{C}P(2)$ by complex conjugation is the 4-sphere. (**49** #11541)
**Massey, William S.** The quotient space of the complex projective plane under conjugation is a 4-sphere. (**49** #6262)
**Myung, Myung Mi** PL involutions of some 3-manifolds. (**45** #4429)
**Taniguchi, Takeshi** On the Euler-characteristic and the signature of $G$-manifolds. (**48** #7263)
**Uchida, Fuichi** Compact transformation groups on complex projective spaces with codimension two principal orbits. (**58** #18502)
**Wang, Kai** Decomposability of homotopy lens spaces. (**47** #9650)
**Zieschang, H.** Triangular groups. (Russian) (**56** #15789)

### 57E99 None of the above, but in this section

**Abels, Herbert** Proper transformation groups. **57** #13999
**Allday, Christopher** (*with* Halperin, Stephen) Lie group actions on spaces of finite rank. **58** #18510
**Barre, Raymond** De quelques aspects de la théorie des $q$-variétés différentielles et analytiques. (English summary) **50** #1275
**Cooke, George E.** Replacing homotopy actions by topological actions. **57** #1529
**Daluge, Dennis** The space of conjugacy classes of a topological group. **51** #4299
**Dydo, Wayne E.** Proper $G$-spaces. **50** #5833
**Gorbacevič, V. V.** The classification of four-dimensional compact homogeneous spaces. (Russian) **57** #14000
**Halperin, Stephen** *See* **Allday, Christopher**, **58** #18510
**de la Harpe, Pierre** *See* **Omori, Hideki**, **48** #7308
**Husch, L. S.** Actions of locally compact groups with zero on manifolds. **52** #6766
**Ismagilov, R. S.** The unitary representations of the group of diffeomorphisms of a compact manifold. (Russian) **46** #908
The unitary representations of the diffeomorphism group of a compact manifold. (Russian) **46** #909
**Lam, Ping Fun** Almost equicontinuous transformation groups. **51** #14126
**Omori, Hideki** (*with* de la Harpe, Pierre) Opération de groupes de Lie banachiques sur les variétés différentielles de dimension finie. **48** #7308
**Plante, Joseph F.** Diffeomorphisms with invariant line bundles. **46** #6383
**Verdier, Jean-Louis** Caractéristique d'Euler-Poincaré. **50** #8580
**Wang, Hsien Chung** A remark on co-compactness of transformation groups. **50** #11304
**Weintraub, Steven H.** Topological realization of equivariant intersection forms. **58** #13100

Secondary classifications:

**Abels, Herbert** Enden von Räumen mit eigentlichen Transformationsgruppen. (**47** #5852)
**Cheeger, Jeff** Some examples of manifolds of nonnegative curvature. (**49** #6085)
**Huang, Wu Hsiung** On the weak Riemannian degree of freedom. (**58** #12848)
**Irwin, M. C.** Transformation groups with a common orbit. (**48** #5038)
**Kamber, Franz W.** (*with* Tondeur, Philippe) ★Invariant differential operators and the cohomology of Lie algebra sheaves. (**54** #1250)
**Kaup, Wilhelm** Analytic transformation groups. (**58** #28701)
**Lander, Les** Stratification by orbits, with an application to $J^2(2,2)$. (**50** #3266)
**Löwen, Rainer** Locally compact connected groups acting on Euclidean space with Lie isotropy groups are Lie. (**54** #7691)
**Luna, Domingo** Sur certaines opérations différentiables des groupes de Lie. (**51** #527)
**Matsuda, Toshimitsu** A note on the groups $K_G(X), K(X/G)$. (**53** #4061)
**Moszner, Zenon** A certain assertion from the theory of continuous transformation groups. (Polish. French summary) (**50** #5763)
**Pixton, Dennis** Nonsmoothable, unstable group actions. (**55** #11310)
**Richardson, R. W., Jr.** Principle orbit types for reductive groups acting on Stein manifolds. (**50** #7600)
**Rosenholtz, Ira** Local expansions, derivatives, and fixed points. (**53** #14465)
**Scheffer, Vladimir** Maps between topological groups that are homotopic to homomorphisms. (**46** #288)
**Stong, Robert E.** (*with* Winkelnkemper, H. E.) Locally free actions and Stiefel-Whitney numbers. II. (**56** #13235)
**Strelcyn, Jean-Marie** On topological conjugation in linear groups. (**45** #4172)
**Szenthe, J.** On the topological characterization of Lie groups and transitive Lie group actions. (**50** #13369)
On the topological characterization of transitive Lie group actions. (**50** #13368)
**Tondeur, Philippe** *See* **Kamber, Franz W.**, (**54** #1250)
**Turiel, Francisco Javier** Détermination de l'action locale d'un groupe moyennant les jets d'ordre fini. (English summary) (**54** #11421)
**Vaĭnšteĭn, A. G.** Letter to the editors: Remarks on the note "Uniform classification of motions in Euclidean and Lobačevskian spaces" (Uspehi Mat. Nauk **29** (1974), no. 5 (179), 217–218). (Russian) (**57** #13794)
**Vedernikov, S. V.** Special morphisms of $G$-spaces. (Russian. English summary) (**58** #7503)
**Vedernikov, V. I.** A certain special class of homogeneous spaces. (Russian) (**48** #5040)
**Winkelnkemper, H. E.** *See* **Stong, Robert E.**, (**56** #13235)

## 57Fxx Homology and homotopy of topological groups and related structures

Secondary classifications:

**Greub, Werner H.** (*with* Halperin, Stephen; Vanstone, Ray) ★Connections, curvature, and cohomology. (**53** #4110 (EA **53**) )
**Halperin, Stephen** *See* **Greub, Werner H.; et al.**, (**53** #4110 (EA **53**) )
**Vanstone, Ray** *See* **Greub, Werner H.; et al.**, (**53** #4110 (EA **53**) )

### 57F05 Hopf algebras [See also 16A24.]

**Nikitenko, O. V.** On group properties of a class of dynamic systems. **51** #14155

Secondary classifications:

**Barratt, Michael** (*with* Priddy, Stewart B.) On the homology of non-connected monoids and their associated groups. (**47** #3489)
**Baues, Hans Joachim** (*with* Lemaire, Jean-Marie) Minimal models in homotopy theory. (**55** #4174)
**Kane, Richard** The module of indecomposables for finite $H$-spaces. (**54** #11320)
**Lemaire, Jean-Marie** *See* **Baues, Hans Joachim**, (**55** #4174)
**Lin, James P.** Torsion in $H$-spaces. I. (**54** #13911)
Torsion in $H$-spaces. II. (**58** #7619)
**McNaughton, J. M.** A note on cocycle twisted rings of differential operators. (**56** #5524)
**Molnar, Richard K.** Semi-direct products of Hopf algebras. (**58** #16700)
**Moore, John C.** Differential homological algebra. (**55** #9128)
**Papastavridis, Stavros G.** An identity on algebras over a Hopf algebra. (**58** #10993)
**Priddy, Stewart B.** *See* **Barratt, Michael**, (**47** #3489)
**Smirnov, Vladimir A.** The functor $D$ and strong homotopy. (Russian) (**58** #7624)
**Yanagida, Syun-ichi** The additive structure of $G^*(L^n(P^k))$. (**55** #4146)

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**Baker, Daniel** Differential characters and Borel cohomology. **58** #31127
**Brown, Robert F.** The real cohomology of compact disconnected Lie groups. (See Zbl **248** #57029)
Fixed points of endomorphisms of compact groups. **48** #9747
Cohomology of homomorphisms of Lie algebras and Lie groups. **56** #3869
**Chavez, Tito Roger** A Hopf algebra approach to $H^*(\mathrm{SO};Z)$. **50** #8581
**Dochiţoiu, Constantin** Sur les générateurs des groupes d'homologie et cohomologie singulière des variétés grassmanniennes réelles. **56** #9559
**Held, René P.** (*with* Suter, Ueli) On the unitary $K$-theory of compact Lie groups with finite fundamental group. **48** #5110
**Ishitoya, Kiminao** (*with* Kono, Akira; Toda, Hirosi) Hopf algebra structure of mod 2 cohomology of simple Lie groups. **54** #3731
**Kono, Akira** (*with* Mimura, Mamoru; Shimada, Nobuo) On the cohomology mod 2 of the classifying space of the 1 connected exceptional Lie group $E_7$. **54** #3732
Hopf algebra structure of simple Lie groups. **57** #14001

On the 2-rank of compact connected Lie groups. **58** #2843
(*with* Mimura, Mamoru) Cohomology operations and the Hopf algebra structures of the compact, exceptional Lie groups $E_7$ and $E_8$. **56** #13243
*See also* **Ishitoya, Kiminao; et al.**, **54** #3731
**Marchiafava, Stefano** (*with* Romani, Giuliano) Sul classificante del gruppo $\mathrm{Sp}(n)\cdot\mathrm{Sp}(1)$. **55** #6454
**Mimura, Mamoru** *See* **Kono, Akira; et al.**, **54** #3732 *and* **Kono, Akira**, **56** #13243
**Quillen, Daniel** The spectrum of an equivariant cohomology ring. I, II. **45** #7743
**Romani, Giuliano** *See* **Marchiafava, Stefano**, **55** #6454
**Sah, Chih Han** (*with* Wagoner, John B.) Second homology of Lie groups made discrete. **58** #31128
**Shimada, Nobuo** *See* **Kono, Akira; et al.**, **54** #3732
**Stieglitz, Andreas** Eine Spektralsequenz in der stetigen Kohomologiethoerie topologischer Gruppen. (English summary) **51** #14127
**Suter, Ueli** *See* **Held, René P.**, **48** #5110
**Toda, Hirosi** *See* **Ishitoya, Kiminao; et al.**, **54** #3731
**Wagoner, John B.** *See* **Sah, Chih Han**, **58** #31128
**Wu, Wên Chün** Theory of the functor $I^*$ in algebraic topology—the real topology of homogeneous spaces. (Chinese) **56** #16660

Secondary classifications:

**(Alperin, Roger C.)** *See* **Brown, Kenneth S.**, (**58** #28143)
**Borel, Armand** Cohomologie de certains groupes discretes et laplacien $p$-adique (d'après H. Garland). (**57** #16470)
**Bott, Raoul** On the Chern-Weil homomorphism and the continuous cohomology of Lie-groups. (**49** #9854)
**Brown, Kenneth S.** Cohomology of groups. (**58** #28143)
**Cathelineau, Jean-Louis** Sur un théorème d'intégralité de B. Kostant. (**56** #5791)
**Curtis, Morton** (*with* Wiederhold, Alan; Williams, Bruce) Normalizers of maximal tori. (**51** #13131)
**tom Dieck, Tammo** Kobordismentheorie klassifizierender Räume und Transformationsgruppen. (**45** #7744)
**(Evens, Leonard)** *See* **Brown, Kenneth S.**, (**58** #28143)
**(Fiedorowicz, Zbigniew)** *See* **Brown, Kenneth S.**, (**58** #28143)
**Fuks, D. B.** *See* **Gel′fand, I. M.; et al.**, (**46** #922)
**Gel′fand, I. M.** (*with* Kazhdan, David; Fuks, D. B.) Actions of infinite-dimensional Lie algebras. (Russian) (**46** #922)
**Held, René P.** (*with* Suter, Ueli) On torsion in unitary $K$-theory of compact Lie groups. (Italian summary) (**51** #4217)
(*with* Suter, Ueli) Stable vector bundles over the projective orthogonal groups. (**51** #4246)
**Hochschild, G.** Basic constructions in group extension theory. (**57** #12716)
**Kazhdan, David** *See* **Gel′fand, I. M.; et al.**, (**46** #922)
**Kono, Akira** On cohomology mod 2 of the classifying spaces of non-simply connected classical Lie groups. (**54** #6142)
(*with* Mimura, Mamoru) Cohomology mod 2 of the classifying space of th compact connected Lie group of type $E_6$. (**51** #4244)
**Lee, Ronnie** (*with* Szczarba, R. H.) On the homology of congruence subgroups and $K_3(\mathrm{Z})$. (**52** #5825)
**May, J. Peter** (*with* Zabrodsky, Alexander) $H^*\mathrm{spin}(n)$ as a Hopf algebra. (**56** #13220)
**Mimura, Mamoru** *See* **Kono, Akira**, (**51** #4244)
**Mozrzymas, Jan** (*with* Rzewuski, Jan) Remarks on the application of group extensions to quantization. (Russian summary) (**57** #6301)
**Richardson, R. W., Jr.** Deformations of Lie subgroups and the variation of isotropy subgroups. (**45** #8771)
**Roberts, John E.** Perturbations of dynamics and group cohomology. (French summary) (**57** #18542)
**Rzewuski, Jan** *See* **Mozrzymas, Jan**, (**57** #6301)
**Seymour, R. M.** The real $K$-theory of Lie groups and homogeneous spaces. (**47** #7738)
**Shapiro, Jack M.** On the cohomology of the classical linear groups. (**54** #419)
**(Soulé, Christophe)** *See* **Brown, Kenneth S.**, (**58** #28143)
**Stasheff, James Dillon** Continuous cohomology of groups and classifying spaces. (**58** #13003)
**Suter, Ueli** *See* **Held, René P.**, (**51** #4217) *and* **Held, René P.**, (**51** #4246)
**Świerczkowski, S.** Cohomology of group germs and Lie algebras. (**47** #308)
**Szczarba, R. H.** *See* **Lee, Ronnie**, (**52** #5825)
**(Wagoner, John B.)** *See* **Brown, Kenneth S.**, (**58** #28143)
**Wiederhold, Alan** *See* **Curtis, Morton; et al.**, (**51** #13131)
**Williams, Bruce** *See* **Curtis, Morton; et al.**, (**51** #13131)
**Zabrodsky, Alexander** *See* **May, J. Peter**, (**56** #13220)

## 57F15 Homology of homogeneous spaces of Lie groups

**Auslander, Louis** (*with* Szczarba, R. H.) Vector bundles over tori and noncompact solvmanifolds. **52** #4324
**Bankov, Kiril** Incidence coefficients of real Grassmann manifolds. (Russian. English summary) **58** #24307
**Connolly, Frank** (*with* Nagano, Tadashi) The intersection pairing on a homogeneous Kähler manifold. **56** #9560
**Dao Cong Thi** Algebraic questions on the realization of cycles in symmetric spaces. (Russian. English summary) **53** #14523
**tom Dieck, Tammo** Orbittypen und äquivariante Homologie. II. **55** #9127
**Heintze, Ernst** The curvature of $SU(5)/Sp(2)\times S^1$. **53** #4107
Krümmung und Topologie des Raumes $\mathrm{SU}(5)/(\mathrm{Sp}(2)\times S^1)$. **52** #9261
**Ishitoya, Kiminao** (*with* Toda, Hirosi) On the cohomology of irreducible symmetric spaces of exceptional type. **56** #1333
Integral cohomology ring of the symmetric space $EII$. **56** #1334
Cohomology of the symmetric space $EI$. **58** #7668
**James, Ioan M.** Note on Stiefel manifolds. II. **45** #6027
**Kamber, Franz W.** (*with* Tondeur, Philippe) Cohomologie des algèbres de Weil relative tronquées. **47** #9660
(*with* Tondeur, Philippe) Algèbres de Weil semi-simpliciales. **47** #9661
(*with* Tondeur, Philippe) Homomorphisme caractéristique d'un fibré principa feuilleté. **47** #9662
**Kono, Akira** (*with* Mimura, Mamoru; Shimada, Nobuo) Cohomology of classifying spaces of certain associative $H$-spaces. **52** #9262
**Kôzaki, Masanori** On Riemannian manifolds with certain geodesic loops. **51** #11559
**Kultze, Rolf** Über die Cohomologie von komplexen Stiefel-Mannigfaltigkeiten. **47** #7765
**Lai, Hon Fei** On the topology of the even-dimensional complex quadrics. **50** #11305
**Lee, Ronnie** On unstable cohomology classes of $SL_n(Z)$. **57** #7630
**Manturov, O. V.** Generators in the complex $K$-functor of compact homogeneous spaces (Russian) **49** #4012
**Matsushima, Yozo** On a problem of Stoll concerning a cohomology map from a flag manifold into a Grassmann manifold. **54** #6176
**Mimura, Mamoru** Quasi-$p$-regularity of symmetric spaces. **46** #911
(*with* Nishida, Gorō; Toda, Hiroshi) Mod $p$ decomposition of compact Lie groups. **57** #17675
*See also* **Kono, Akira; et al.**, **52** #9262
**Minami, Haruo** On the basic $G$-space in equivalent $K$-theory. **50** #5834
$K$-groups of $EIII$ and $FII$. **55** #13458
**Nagano, Tadashi** *See* **Connolly, Frank**, **56** #9560
**Nishida, Gorō** *See* **Mimura, Mamoru; et al.**, **57** #17675
**Oproiu, Vasile** Some multiplication formulas in the cohomology ring of the Grassmann manifolds. **56** #1335
Some non-embedding theorems for the Grassmann manifolds $G_{2,n}$ and $G_{3,n}$. **56** #3870
**Parker, George D.** Morse theory and cell decomposition of Kähler manifolds and related spaces. **52** #15518
**Randall, Duane** Cohomology of quasi-projective Stiefel manifolds. **47** #9663 (E **49** #8048)
Erratum: "Cohomology of quasi-projective Stiefel manifolds" (Rocky Mountain J. Math. 3 (1973), no. 4, 619–630). **49** #8048
**Ružický, Eugen** The incidence submanifold of $RP^n\times G_1(RP^n)$ for $n$ odd is nonorientable. **55** #4239
**Schneider, Victor P.** Degree of symmetry of Stiefel manifolds. **45** #7748
**Shimada, Nobuo** *See* **Kono, Akira; et al.**, **52** #9262
**Steinberg, Robert** On a theorem of Pittie. **51** #9101
**Szczarba, R. H.** *See* **Auslander, Louis**, **52** #4324
**Toda, Hiroshi** (*with* Watanabe, Takashi) The integral cohomology ring of $\mathbf{F}_4/\mathbf{T}$ and $\mathbf{E}_6/\mathbf{T}$. **50** #11306
On the cohomology ring of some homogeneous spaces. **52** #1753
*See also* **Mimura, Mamoru; et al.**, **57** #17675
**Toda, Hirosi** *See* **Ishitoya, Kiminao**, **56** #1333
**Tondeur, Philippe** *See* **Kamber, Franz W.**, **47** #9660; **Kamber, Franz W.**, **47** #9661 *and* **Kamber, Franz W.**, **47** #9662
**Watanabe, Takashi** The integral cohomology ring of the symmetric space **EVII**. **52** #1754
*See also* **Toda, Hiroshi**, **50** #11306
**Wolf, Joel** The cohomology of homogeneous spaces. **55** #11284

Secondary classifications:

**Bernšteĭn, I. N.** (*with* Gel′fand, I. M.; Gel′fand, S. I.) Schubert cells and the cohomology of a flag space. (Russian) (**47** #6713)
(*with* Gel′fand, I. M.; Gel′fand, S. I.) Schubert cells, and the cohomology of the spaces $G/P$. (Russian) (**55** #2941)
**Gel′fand, I. M.** *See* **Bernšteĭn, I. N.; et al.**, (**47** #6713) *and* **Bernšteĭn, I. N.; et al.**, (**55** #2941)
**Gel′fand, S. I.** *See* **Bernšteĭn, I. N.; et al.**, (**47** #6713) *and* **Bernšteĭn, I. N.; et al.**, (**55** #2941)
**Harder, G.** A Gauss-Bonnet formula for discrete arithmetically defined groups. (**46** #8255)
**Husemoller, Dale** (*with* Moore, John C.; Stasheff, James Dillon) Differential homological algebra and homogeneous spaces. (**51** #1823)
**Imaoka, Mitsunori** (*with* Sugawara, Masahiro) On the $K$-ring of the orbit manifold $(S^{2m+1}\times S^l)/D_n$ by the dihedral group $D_n$. (**50** #5831)
**Kôzaki, Masanori** On manifolds with many geodesic loops. (**49** #11426)
**Lévy-Bruhl-Laperrière, Anne** Spectre du de Rham Hodge sur l'espace projectif complexe. (English summary) (**56** #6764)
**Minami, Haruo** $K$-groups of symmetric spaces. I. (**54** #3727a)
$K$-groups of symmetric spaces. II. (**54** #3727b)
**Moore, John C.** *See* **Husemoller, Dale; et al.**, (**51** #1823)
**Naylor, C. M.** On the $\beta$-construction in $K$-theory. (**48** #5054)
**Neifahs, A.** A necessary condition for the parallelizability of Grassmann manifolds. (Russian. Latvian and English summaries) (**47** #4271)
**Oniščik, A. L.** Certain topological invariants of homogeneous spaces. (Russian) (**48** #3047)
**Schneider, Victor P.** Homogeneous spaces with vanishing Steenrod squaring operations. (**53** #9263)
**Shapiro, Jack M.** On the algebraic structure of the $K$-theory of $G_2/\mathrm{SU}(3)$ and $F_4/\mathrm{Spin}(9)$. (**51** #4248)
**Stasheff, James Dillon** *See* **Husemoller, Dale; et al.**, (**51** #1823)
**Strutt, Joseph** Projective homotopy classes of Stiefel manifolds. (**54** #11328)
**Sugawara, Masahiro** *See* **Imaoka, Mitsunori**, (**50** #5831)
**Szybiak, A.** Grassmannians of higher order and equations of moving frame. (**55** #6335)

## 57F20 Homotopy groups of topological groups and homogeneous spaces

**Friedrich, Thomas** (*with* Wintgen, Peter) Über $k$-reguläre Abbildungen von Sphären in Grassmannsche Mannigfaltigkeiten. **52** #11964

**Furukawa, Yasukuni** *See* **Nomura, Yasutoshi, 55** #11285
**Gorbacevič, V. V.** Aspherical homogeneous spaces. (Russian) **54** #1271
**Hardy, J. P. L.** (*with* Morris, Sidney A.) The free topological group on a simply connected space. **54** #12951
**James, Ioan M.** ★The topology of Stiefel manifolds. **55** #4240
**Mimura, Mamoru** (*with* Toda, Hirosi) A representation and the quasi $p$-regularity of the compact Lie group. **53** #4108
**Morris, Sidney A.** *See* **Hardy, J. P. L., 54** #12951
**Nomura, Yasutoshi** (*with* Furukawa, Yasukuni) Some homotopy groups of complex Stiefel manifolds $W_{n,2}$ and $W_{n,3}$. **55** #11285
**Petrie, Ted** Obstructions to transversality for compact Lie groups. **51** #4300
**Shastri, A. R.** On nonapproximability of $K(\pi, n)$-spaces by homogeneous spaces. **56** #6689
**Toda, Hiroshi** A note on compact semi-simple Lie groups. **57** #17676
*See also* **Mimura, Mamoru, 53** #4108
**Tsagas, Grigorios** The first homotopy group of a Riemannian $s$-manifold. **52** #11965
**Wintgen, Peter** *See* **Friedrich, Thomas, 52** #11964

Secondary classifications:

**Ahiezer, D. N.** The homotopy classification of complex homogeneous spaces. (Russian) (**57** #12920)
**Bolker, Ethan D.** The spinor spanner. (**49** #6232)
**Curtis, Morton** A homotopy theoretic approach to Lie groups. (**52** #9219)
**Harper, John R.** The mod 3 homotopy type of $F_4$. (**51** #1810)
**Lam, Kee Yuen** A formula for the tangent bundle of flag manifolds and related manifolds. (**55** #4196)
A note on Stiefel manifolds and the generalized $J$ homomorphism. (**58** #31072)
**Lang, George E., Jr.** Evaluation subgroups of factor spaces. (**47** #2595)
**Leise, James A.** The Bott suspension and the intrinsic join. (**53** #6546)
**May, J. Peter** Classifying spaces and fibrations. (**51** #6806)
**Milgram, R. James** (*with* Zvengrowski, Peter) Projective Stiefel manifolds and skew linear vector fields. (**50** #1257)
**Singhof, Wilhelm** On the Lusternik-Schnirelmann category of Lie groups. II. (**54** #13902)
**Wigner, David** Algebraic cohomology of topological groups. (**49** #2898)
**Zvengrowski, Peter** *See* **Milgram, R. James,** (**50** #1257)

### 57F25 Homology of $H$-spaces

**Fadell, Edward R.** (*with* Rabinowitz, Paul H.) Generalized cohomological index theories for Lie group actions with an application to bifurcation questions for Hamiltonian systems. **57** #17677
**Lin, James P.** On the cohomology of $H$-spaces of exceptional type. **53** #4109
**Papastavridis, Stavros G.** Polynomial algebras which are modules over the mod-$p$ Steenrod algebra. **57** #14002
**Rabinowitz, Paul H.** *See* **Fadell, Edward R., 57** #17677
**Schultz, Reinhard** Rational $h$-cobordism invariants for lens space bundles. **51** #9102 (E **55** #6455)
Corrigenda: "Rational $H$-cobordism invariants for lens space bundles" (Quart. J. Math. Oxford Ser. (2) **25** (1974), 497–511). **55** #6455

Secondary classifications:

**Adams, John Frank** Primitive elements in the $K$-theory of $BSU$. (**54** #3698)
**Hofmann, Karl Heinrich** (*with* Mostert, Paul S.) ★Cohomology theories for compact abelian groups. (**51** #8330)
**Kono, Akira** A secondary operation of exceptional Lie groups. (**56** #9530)
**Lin, James P.** The loop space problem and its consequences. (**56** #6652)
**Mostert, Paul S.** *See* **Hofmann, Karl Heinrich,** (**51** #8330)
**(Nummela, Eric C.)** *See* **Hofmann, Karl Heinrich; et al.,** (**51** #8330)

### 57F30 Bar and cobar constructions

**Aomoto, Kazuhiko** On the acyclicity of free cobar constructions. I. **58** #13101a
On the acyclicity of free cobar constructions. II. **58** #13101b
**Chen, Kuo-Tsai** Reduced bar constructions on de Rham complexes. **54** #1272
**Heller, Alex** Adjoint functors and bar constructions. **48** #12585
**Moore, John C.** Differential homological algebra. **55** #9128
**Mostow, Mark Alan** Variations, characteristic classes, and the obstruction to mapping smooth to continuous cohomology. **57** #14003

Secondary classifications:

**Baker, Daniel** Differential characters and Borel cohomology. (**58** #31127)
**Gugenheim, V. K. A. M.** (*with* Munkholm, Hans J.) On the extended functoriality of Tor and Cotor. (**50** #445)
**Gutiérrez, Mauricio A.** Homology and completions of groups. (**58** #5972)
**Marchiafava, Stefano** (*with* Romani, Giuliano) Alcune osservazioni sui sottogruppi abeliani del gruppo $\mathrm{Sp}(n)\cdot\mathrm{Sp}(1)$. (**57** #472)
**Munkholm, Hans J.** *See* **Gugenheim, V. K. A. M.,** (**50** #445)
**Nakamura, Osamu** On the squaring operations in the May spectral sequence. (**54** #1224)
**Romani, Giuliano** *See* **Marchiafava, Stefano,** (**57** #472)

### 57F35 Applications of Eilenberg-Moore spectral sequences [See also 55F20, 55H20.]

**Gugenheim, V. K. A. M.** (*with* May, J. Peter) ★On the theory and applications of differential torsion products. **52** #15519
**Held, René P.** (*with* Suter, Ueli) Die Bestimmung der unitären $K$-Theorie von $\mathrm{SO}(n)$ mit Hilfe der Atiyah-Hirzebruch-Spektralreihe. **45** #1191
**Kono, Akira** (*with* Mimura, Mamoru) On the cohomology of the classifying spaces of $\mathrm{PSU}(4n+2)$ and $\mathrm{PO}(4n+2)$. **51** #9103
**May, J. Peter** *See* **Gugenheim, V. K. A. M., 52** #15519
**Mimura, Mamoru** *See* **Kono, Akira, 51** #9103
**Suter, Ueli** *See* **Held, René P., 45** #1191
**Toda, Hiroshi** Cohomology of the classifying space of exceptional Lie groups. **51** #4301

Secondary classifications:

**Hastings, Harold M.** Simplicial topological resolutions. (**51** #11509a (E **51** #11509b) )
Correction to: "Simplicial topological resolutions" (Proceedings of the Thirteenth Biennial Seminar of the Canadian Mathematical Congress, Dalhousie Univ., Halifax, N.S., 1971) Vol. 2, pp. 66–77. Canad. Math. Congr., Montreal, Que. 1972). (**51** #11509b)
**Kono, Akira** (*with* Mimura, Mamoru) Cohomology mod 2 of the classifying space of th compact connected Lie group of type $E_6$. (**51** #4244)
**Mimura, Mamoru** *See* **Kono, Akira,** (**51** #4244)

### 57F99 None of the above, but in this section

**Berezovskiĭ, A. L.** The lattice of spaces of positive paths on a symplectic group. (Russian) **58** #7669
**Brown, Lawrence G.** Extensions of topological groups. **46** #6384
**Chang, Theodore** On the number of relations in the cohomology of a fixed point set. **54** #13954
**Friedlander, Eric M.** Maps between localized homogeneous spaces. **58** #18511
**Guichardet, Alain** Sur la cohomologie des groupes topologiques. **46** #6385
**Harrison, Jenny** Unsmoothable diffeomorphisms. **52** #9294
**Moore, John C.** What it means for a coalgebra to be simply connected. **54** #3733

Secondary classifications:

**Adams, John Frank** (*with* Mahmud, Zafer) Maps between classifying spaces. (**54** #11331)
**Borisovič, Ju. G.** (*with* Izrailevič, Ja. A.; Ščelokova, T. N.) On the method of A. Borel's spectral sequence in the theory of equivariant mappings. (Russian) (**55** #13409)
**Buhštaber, V. M.** (*with* Novikov, S. P.) Formal groups, power systems and Adams operators. (Russian) (**45** #253)
**Chu, Bon Yao** Symplectic homogeneous spaces. (**49** #7388)
**de la Harpe, Pierre** Dérivations des $L^*$-algèbres semi-simples complexes et des algèbres de Lie classiques d'opérateurs compacts. (**45** #5770)
(*with* Ramer, Roald) Cohomologie scalaire des algèbres de Lie classiques de type $A$ d'opérateurs compacts. (**45** #5771)
$L^*$-algèbres simples et algèbres de Lie classiques d'opérateurs dans l'espace hilbertien. (**45** #4162)
**Izrailevič, Ja. A.** *See* **Borisovič, Ju. G.; et al.,** (**55** #13409)
**Katz, Elyahu** A Künneth formula for coproducts of simplicial groups. (**56** #3842)
**Knapp, Karlheinz** Rank and Adams filtration of a Lie group. (**57** #10703)
**Madsen, Ib** On the action of the Dyer-Lashof algebra in $H_*(G)$. (**52** #9228)
**Mahmud, Zafer** *See* **Adams, John Frank,** (**54** #11331)
**Novikov, S. P.** *See* **Buhštaber, V. M.,** (**45** #253)
**Ossa, Erich** Unitary bordism of abelian groups. (**45** #2743)
**Ramer, Roald** *See* **de la Harpe, Pierre,** (**45** #5771)
**Ščelokova, T. N.** *See* **Borisovič, Ju. G.; et al.,** (**55** #13409)
**Sullivan, Dennis** Genetics of homotopy theory and the Adams conjecture. (**56** #1305)

## 58–XX GLOBAL ANALYSIS, ANALYSIS ON MANIFOLDS [For real-analytic and complex manifolds, see 32Cxx; for geometric integration theory, see 49F20, 49F22.]

Secondary classifications:

**Bourbaki, Nicolas** ★Дифференцируемые и аналитические многообразия. (Russian) [Differentiable and analytic manifolds] (**51** #14084)
**(Kirillov, A. A.)** *See* **Bourbaki, Nicolas,** (**51** #14084)
**(Ol′šanskiĭ, G. I.)** *See* **Bourbaki, Nicolas,** (**51** #14084)

### 58–01 Elementary exposition (collegiate level)

**Albu, Adrian C.** *See* **Papuc, Dan I., 54** #6177
**Auslander, Louis** (*with* MacKenzie, Robert E.) ★Introduction to differentiable manifolds. **57** #10717
**Barnes, Aaron** Geometrical meaning of the curl operation when $A\cdot\mathrm{curl}\,A\neq 0$. **57** #10718
**Berger, Marcel** (*with* Gostiaux, Bernard) ★Géométrie différentielle. **58** #13102
**(Boll, Ludwig)** *See* **Dieudonné, Jean A., 57** #14004a
**Bröcker, Theodor** (*with* Jänich, Klaus) ★Einführung in die Differentialtopologie. **50** #11307
**Chillingworth, David** Smooth manifolds and maps. **55** #11286
★Differential topology with a view to applications. **58** #31129
**Choquet-Bruhat, Y.** (*with* DeWitt-Morette, Cecile; Dillard-Bleick, Margaret) ★Analysis, manifolds and physics. **57** #7631
**(Čirka, E. M.)** *See* **Wells, R. O., Jr., 58** #24309b
**Craioveanu, Mircea** (*with* Raţiu, Tudor S.) ★Elemente de analiză locală. I. (Romanian) [Elements of local analysis. I.] **58** #2844a
(*with* Raţiu, Tudor S.) ★Elemente de analiză locală. II. (Romanian) [Elements of local analysis. II] **58** #2844b
**Dedecker, Paul** ★Variedades diferenciables y espacios fibrados. (Spanish) [Differentiable manifolds and fiber spaces] **54** #13955

**DeWitt-Morette, Cecile** *See* **Choquet-Bruhat, Y.; et al., 57** #7631
**Dieudonné, Jean A.** ★Grundzüge der modernen Analysis. **57** #14004a
★Éléments d'analyse. Tome V. Chapitre XXI. **57** #7633
★Grundzüge der modernen Analysis. Band 3. **58** #24308
★Éléments d'analyse. Tome IV. Chapitres XVIII à XX. **57** #7632
★Treatise on analysis. Vol. 5. Chapter XXI. **57** #7634
★Éléments d'analyse. Tome VII. Chapitre XXIII. Première partie. **58** #13103a
★Éléments d'analyse. Tome VIII. Chapitre XXIII. Deuxième partie. **58** #13103b
**Dillard-Bleick, Margaret** *See* **Choquet-Bruhat, Y.; et al., 57** #7631
**Géorgiev, Géorgi Iv.** (*with* Oproiu, Vasile) ★Varietăţi diferenţiabile finit şi infinit dimensionale. Vol. I. (Romanian) [Finite- and infinite-dimensional differentiable manifolds. Vol. I] **58** #31131
**(Gollek, Herbert)** *See* **Dieudonné, Jean A., 58** #24308
**Gostiaux, Bernard** *See* **Berger, Marcel, 58** #13102
**Guillemin, V.** (*with* Pollack, Alan) ★Differential topology. **50** #1276
**Hermann, Robert** ★Geometry, physics, and systems. **58** #13104
★Differential geometry and the calculus of variations. **58** #13105
**Jänich, Klaus** *See* **Bröcker, Theodor, 50** #11307
**Križanič, France** Simple examples from topological dynamics. (Slovenian. English summary) **58** #13106
**Lang, Serge** ★Differential manifolds. **55** #4241
**(Macdonald, I. G.)** *See* **Dieudonné, Jean A., 57** #7634
**MacKenzie, Robert E.** *See* **Auslander, Louis, 57** #10717
**Markus, L.** Dynamical systems—five years after. **58** #31132
**(Matthes, Klaus)** *See* **Dieudonné, Jean A., 57** #14004a
**Maurin, Krzysztof** ★Calculus of variations and classical field theory. I. **58** #7670
**(Mitjagin, B. S.)** *See* **Wells, R. O., Jr., 58** #24309b
**Oproiu, Vasile** *See* **Géorgiev, Géorgi Iv., 58** #31131
**Papuc, Dan I.** (*with* Albu, Adrian C.) ★Elemente de geometrie diferenţială globală. (Romanian) [Elements of global differential geometry] **54** #6177
**Pollack, Alan** *See* **Guillemin, V., 50** #1276
**Raţiu, Tudor S.** *See* **Craioveanu, Mircea, 58** #2844a *and* **Craioveanu, Mircea, 58** #2844b
**Singer, I. M.** (*with* Thorpe, John A.) ★Lecture notes on elementary topology and geometry. **54** #1273
**Sulanke, Rolf** (*with* Wintgen, Peter) ★Differentialgeometrie und Faserbündel. **54** #1274
*See also* **Dieudonné, Jean A., 58** #24308
**Tallini, Giuseppe** ★Varietà differenziabili e coomologia di de Rham. **57** #4202
**Thorpe, John A.** *See* **Singer, I. M., 54** #1273
**Wells, R. O., Jr.** ★Differential analysis on complex manifolds. **58** #24309a
★Дифференциальное исчисление на комплексных многообразиях. (Russian) [Differential analysis on complex manifolds] **58** #24309b
**Wintgen, Peter** *See* **Sulanke, Rolf, 54** #1274 *and* **Dieudonné, Jean A., 58** #24308

Secondary classifications:

**Arnol'd, V. I.** ★Ordinary differential equations. (**58** #22707)
**(Bamberger, Yves)** *See* **Schwartz, Laurent,** (**58** #753)
**(Bourguignon, Jean-Pierre)** *See* **Schwartz, Laurent,** (**58** #753)
**Bowen, Ray M.** (*with* Wang, Chao Chen) ★Introduction to vectors and tensors. Vol. 2. (**57** #3)
**Dieudonné, Jean A.** ★Éléments d'analyse. Tome VI. Chapitre XXII. (**58** #29825a)
★Treatise on analysis. Vol. II. (**58** #26627)
★Treatise on analysis. Vol. VI. (**58** #29825b)
**Dodson, C. T. J.** (*with* Poston, Tim) ★Tensor geometry. (**58** #18168)
**Efimov, N. V.** ★Внешние дифференциальные формы в евклидовом пространстве. (Russian) [Exterior differential forms in Euclidean space] (**54** #3599)
**Fowler, D. H.** Advanced calculus. (**55** #10610)
**Guenot, Jacques** (*with* Narasimhan, Raghavan) Introduction à la théorie des surfaces de Riemann. (**53** #3293)
(*with* Narasimhan, Raghavan) ★Introduction à la théorie des surfaces de Riemann. (**53** #10809)
**Hermann, Robert** ★Topics in the mathematics of quantum mechanics. (**58** #25445)
★Geometric structure theory of systems—control theory and physics. Part A. (**58** #33186)
**Hirsch, Morris W.** ★Differential topology. (**56** #6669)
**(Hoffman, David A.)** *See* **Klingenberg, Wilhelm,** (**57** #13702)
**Holmann, Harald** ★Riemannsche Flächen. I. (**54** #2949)
★Riemannsche Flächen. II. (**54** #2950)
**Jyoo, Yeong Heum** Study of a variational theory in mathematical physics. (Korean. English summary) (**55** #6480)
**Kappel, Franz** *See* **Knobloch, H. W.,** (**58** #28735)
**(Kaup, Burchard)** *See* **Holmann, Harald,** (**54** #2949) *and* **Holmann, Harald,** (**54** #2950)
**Klingenberg, Wilhelm** ★A course in differential geometry. (**57** #13702)
**Knobloch, H. W.** (*with* Kappel, Franz) ★Gewöhnliche Differentialgleichungen. (**58** #28735)
**(Lepa, Eugene)** *See* **Maurin, Krzysztof,** (**58** #22444)
**(Macdonald, I. G.)** *See* **Dieudonné, Jean A.,** (**58** #26627) *and* **Dieudonné, Jean A.,** (**58** #29825b)
**Maurin, Krzysztof** ★Analysis. Part I. (**58** #22444)
**Narasimhan, Raghavan** *See* **Guenot, Jacques,** (**53** #3293) *and* **Guenot, Jacques,** (**53** #10809)
**Poston, Tim** *See* **Dodson, C. T. J.,** (**58** #18168)
**Radziszewski, Konstanty** ★Wstęp do współczesnej geometrii różniczkowej. (Polish) [Introduction to modern differential geometry] (**55** #3979)
**Schwartz, Laurent** ★Les tenseurs. (**58** #753)
**Sikorski, Roman** ★Wstęp do geometrii różniczkowej. (Polish) [Introduction to differential geometry] (**57** #7400)
**(Silverman, Richard A.)** *See* **Arnol'd, V. I.,** (**58** #22707)
**Wang, Chao Chen** *See* **Bowen, Ray M.,** (**57** #3)

## 58–02 Advanced exposition (research surveys, etc.)

**Anosov, D. V.** Remarks on terminology and notations. (Russian) **58** #13107
**(Antelmann, Horst)** *See* **Dieudonné, Jean A., 57** #14004b
**(Artino, R. A.)** *See* **Nirenberg, L., 58** #7672
**Berger, Melvyn S.** ★Nonlinearity and functional analysis. **58** #7671
**(Boll, Ludwig)** *See* **Dieudonné, Jean A., 57** #14004b
**Boothby, William M.** ★An introduction to differentiable manifolds and Riemannia geometry. **54** #13956
**Carroll, Robert Wayne** ★Abstract methods in partial differential equations. **55** #645
**Chillingworth, David** Symposium on Catastrophe Theory in the Physical Sciences, Ma 27th, 1977, London. **57** #7635
**Dieudonné, Jean A.** ★Treatise on analysis. Vol. III. **50** #3261
★Grundzüge der modernen Analysis. Band 2. **57** #14004b
★Grundzüge der modernen Analysis. Band 3. **57** #14004c
★Grundzüge der modernen Analysis. Band 4. **57** #14004d
**(Fattorini, H.)** *See* **Schwartz, Jacob T., 55** #6457 **(EA 55/56)**
**Greub, Werner H.** (*with* Halperin, Stephen; Vanstone, Ray) ★Connections, curvatur and cohomology. **53** #4110 (EA **53**)
**Hale, Jack K.** Generic bifurcation with applications. **58** #18512
**Halperin, Stephen** *See* **Greub, Werner H.; et al., 53** #4110 **(EA 53)**
**Hermann, Robert** ★The geometry of non-linear differential equations, Bäcklund transformations, and solitons. Part A. **56** #1336
**Holmann, Harald** (*with* Rummler, Hansklaus) ★Alternierende Differentialformen. **53** #1619
**(Karcher, Hermann)** *See* **Schwartz, Jacob T., 55** #6457 **(EA 55/56)**
**(Kucharczyk, Piotr)** *See* **Sulanke, Rolf; et al., 55** #1373
**(Kurke, Herbert)** *See* **Dieudonné, Jean A., 57** #14004d
**(Macdonald, I. G.)** *See* **Dieudonné, Jean A., 50** #3261
**Marsden, Jerrold Eldon** ★Application of global analysis in mathematical physic **58** #31133a
★Applications of global analysis in mathematical physics. **58** #31133b
**Nirenberg, L.** ★Topics in nonlinear functional analysis. **58** #7672
★Лекции по нелинейному функциональному анализу. (Russian) [Lectures o nonlinear functional analysis] **58** #7673
**(Nirenberg, Ricardo)** *See* **Schwartz, Jacob T., 55** #6457 **(EA 55/56)**
**(Palis, Jacob, Jr.)** *See* **Problems: Dynamical systems, 58** #31134
**(Pfister, Gerhard)** *See* **Dieudonné, Jean A., 57** #14004d
**(Porta, Horacio)** *See* **Schwartz, Jacob T., 55** #6457 **(EA 55/56)**
**(Pugh, Charles C.)** *See* **Problems: Dynamical systems, 58** #31134
**(Roczen, Marko)** *See* **Dieudonné, Jean A., 57** #14004d
**Rummler, Hansklaus** *See* **Holmann, Harald, 53** #1619
**Schwartz, Jacob T.** ★Nonlinear functional analysis. **55** #6457 **(EA 55/56)**
**Simonnet, Michel** Feuilletages et sous-fibres intégrables. **58** #18513
**Sulanke, Rolf** (*with* Wintgen, Peter) ★Geometria rózniczkowa i teoria wiązek. (Polis [Differential geometry and fiber bundles] **55** #1373
**Vanstone, Ray** *See* **Greub, Werner H.; et al., 53** #4110 (EA **53**)
**(Vvedenskaja, N. D.)** *See* **Nirenberg, L., 58** #7673
**von Westenholz, Cornelius** ★Differential forms in mathematical physics. **58** #13108
**Wintgen, Peter** *See* **Sulanke, Rolf, 55** #1373
**(Zehnder, Edward J.)** *See* **Nirenberg, L., 58** #7672
**Problems:**
**Dynamical systems** Fifty problems in dynamical systems. **58** #31134
**Symposium:**
**Catastrophe Theory in the Physical Sciences** *See* **Chillingworth, David, 57** #7635

Secondary classifications:

**Chern, Shiing Shen** Differential geometry: its past and its future. (**55** #1242)
**Dieudonné, Jean A.** ★Éléments d'analyse. Tome IV: Chapitres XVIII à XX. (**50** #14507)
★Treatise on analysis. Vol. IV. (**50** #14508)
**(Goldberg, Samuel Irving)** *See* **Vaisman, Izu,** (**49** #6095)
**Gromoll, Detlef** (*with* Klingenberg, Wilhelm; Meyer, Wolfgang) ★Riemannsche Geometrie im Großen. (**51** #1651)
**Klingenberg, Wilhelm** *See* **Gromoll, Detlef; et al.,** (**51** #1651)
**(Macdonald, I. G.)** *See* **Dieudonné, Jean A.,** (**50** #14508)
**Meyer, Wolfgang** *See* **Gromoll, Detlef; et al.,** (**51** #1651)
**Narasimhan, Raghavan** ★Analysis on real and complex manifolds. (**49** #11576)
**Santaló, Luis A.** Some problems of differential geometry. (Spanish) (**54** #1093)
**Vaisman, Izu** ★Cohomology and differential forms. (**49** #6095)
**Zeidler, Eberhard** ★Vorlesungen über nichtlineare Funktionalanalysis. I. Fixpunktsätz (**57** #13585)
★Vorlesungen über nichtlineare Funktionalanalysis. II. Monotone Operatore (**57** #13586)

## 58–03 Historical

Secondary classifications:

**(Cartan, Élie)** *See* **Kuranishi, Masatake,** (**52** #13211)
**Gardner, Robert B.** The influence of Carathéodory on differential systems. (**57** #1770
**(Garnier, René)** *See* **Painlevé, Paul,** (**58** #27154a)
**(Gérard, Raymond)** *See* **Painlevé, Paul,** (**58** #27154a)
**Kuranishi, Masatake** Differential systems, equivalence problem, and infinite Lie group (**52** #13211)

**Lamb, George L., Jr.** Bäcklund transformations at the turn of the century. (**58** #27075)
**Painlevé, Paul** ★Oeuvres de Paul Painlevé. Tome I. (**58** #27154a)
★Oeuvres de Paul Painlevé. Tome II. (**58** #27154b)
★Oeuvres de Paul Painlevé. Tome III. (**58** #27154c)
**(Reeb, Georges H.)** *See* **Painlevé, Paul**, (**58** #27154a)
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On the abstract generalization of jet-spaces for manifolds with linear topological coordinates. III. Prolongations of tensor fields and connexions into manifolds of abstract vitesse. **58** #18521

**Shiraishi, Risai** On the convolutions of currents in $\mathbf{R}^n$. **58** #31154

**Širokov, A. P.** A remark on structures in tangent bundles. (Russian. English summary) **52** #9271

**Szybiak, A.** Canonical form on a groupoid related to regular prolongations of Lie groups. **49** #11555

**Takens, Floris** A note on sufficiency of jets. **45** #2726

**Terng, Chuu Lian** *See* **Palais, Richard S.**, **57** #7639

**Tret'jakov, V. B.** *See* **Evtušik, L. E.**, **52** #15525

**Tulczyjew, Włodzimierz M.** An intrinsic geometric construction for the Lagrange derivative. (Russian summary) **53** #1623

Les jets généralisés. (English summary) **52** #1760

**Vasil'ev, A. M.** Differential algebras and differential-goemetric structures. (Russian. English summary) **53** #4115

**Vassiliou, Efstathios E.** Connections on 1-jets principal fiber bundles. **58** #13117

On the canonical connection of the 1-jet bundle of a principal bundle. **58** #13116

**Vosylius, R.** Spaces of geometric objects, and the prolongation of fiber bundles. I, II, III. (Russian. Lithuanian and English summaries) **50** #8589

Formal differentiation in spaces of geometric objects. (Russian. Lithuanian and English summaries) **54** #1278

**Yuen, Christophe** Opérateurs différentiels sur les fibrés tangents d'ordre 2. (English summary) **53** #9272

Relèvements de dérivations aux fibrés tangents d'ordre 2. **54** #3619

**Zaĭcev, A. A.** Unitary representations of a special group of jets. (Russian) **47** #1080

**Zajtz, Andrzej** Automorphisms of differential groups. **49** #11556

Secondary classifications:

**Brockett, Roger W.** (*with* Sussmann, Héctor J.) Tangent bundles of homogeneous spaces are homogeneous spaces. (**46** #9906)

**Dekrét, Anton** On a horizontal structure on differentiable manifolds. (Russian summary) (**56** #16535)

**Jumagužin, V. A.** Prolongations of $G$-structures. (Russian) (**55** #4301)

**Kolář, Ivan** On the infinitesimal geometric objects of submanifolds. (**51** #11309)

A generalization of the torsion form. (**52** #4168)

Fundamental vector fields on associated fiber bundles. (Czech and loose Russian summaries) (**58** #2928)

**Libermann, Paulette** On "fibre parallelism" and locally reductive spaces. (**57** #13778)

**Mastrogiacomo, Pasquale** Spazi di coomologia dei campi di 2-getti e coomologia 1-dimensionale a coefficienti nel fascio delle funzioni a gradiente parallelo su una varietà a connessione lineare. (English summary) (**57** #7574)

**Ruelle, D.** (*with* Sullivan, Dennis) Currents, flows and diffeomorphisms. (**54** #3759)

**Shiga, Kōji** Cohomology of Lie algebras over a manifold. (**48** #4079)

**Sullivan, Dennis** *See* **Ruelle, D.**, (**54** #3759)

**Sussmann, Héctor J.** *See* **Brockett, Roger W.**, (**46** #9906)

**Szybiak, A.** Grassmannians of higher order and equations of moving frame. (**55** #6335)

**Tong Van Duc** Sur la géométrie différentielle des fibrés vectoriels. (**52** #9111)

## 58A25 Currents

**Chou, Chin Ch'êng** (*with* Shih, Weishu) Sur le microspectre d'un courant. (English summary) **58** #13118

**Kijowski, Jerzy** On representation of functionals of local type by differential forms. **48** #12587

**Lelong, Pierre** Remarques sur un théorème de support pour une classe de courants. **51** #9108

**Paur, Sandra O.** An estimate of the density at the boundary of an integral current modulo $v$. 56 #13246
**Pini, Giorgio** L'indice topologico per le correnti piane. (English summary) 55 #4248
**Puta, Mircea** Sur les courants d'un variété différentielle, invariants sous l'action d'un groupe de Lie. (English summary) 52 #4329
**Shih, Weishu** *See* **Chou, Chin Ch'êng,** 58 #13118

Secondary classifications:

**Bindschadler, David** Absolutely area minimizing singular cones of arbitrary codimension. (58 #7341)
**Dolbeault, Pierre** (*with* Poly, Jean-Baptiste) Differential forms with subanalytic singularities; integral cohomology; residues. (56 #15974)
**Edwards, Robert D.** (*with* Millett, Kenneth C.; Sullivan, Dennis) Foliations with all leaves compact. (55 #11268)
**Federer, Herbert** Colloquium lectures on geometric measure theory. (57 #7330)
**Harvey, Reese** (*with* King, James R.) On the structure of positive currents. (45 #5409)
(*with* Shiffman, Bernard) A characterization of holomorphic chains. (50 #7572)
**King, James R.** *See* **Harvey, Reese,** (45 #5409)
**Lelong, Pierre** Éléments extrémaux dans le cône des courants positifs fermés de type (1, 1) et fonctions plurisousharmoniques extrémales. (45 #594)
**Millett, Kenneth C.** *See* **Edwards, Robert D.; et al.,** (55 #11268)
**Paur, Sandra O.** Stokes' theorem for integral currents modulo $\nu$. (58 #2575)
**Poly, Jean-Baptiste** *See* **Dolbeault, Pierre,** (56 #15974)
**Shiffman, Bernard** *See* **Harvey, Reese,** (50 #7572)
**Sullivan, Dennis** *See* **Edwards, Robert D.; et al.,** (55 #11268)
**Toller, M.** Classical field theory in the space of reference frames. (Italian and Russian summaries) (58 #14704)

## 58A30 Vector distributions (sub-bundles of the tangent bundles)

**Apreutesei, Costache** Algèbres *HC*( ; ), *HP*( ; ), et obstructions à l'intégrabilité. (Italian summary) 58 #18522
**Bazylev, V. T.** Nets on manifolds. (Russian. English summary) 52 #15529
**Berezman, A. M.** Vector translation defined by a noninvolutory distribution. (Russian) 56 #13247
**Bierstone, Edward** An equivariant version of Gromov's theorem. 48 #1258
**Chillingworth, David** (*with* Stefan, Peter) Integrability of singular distributions on Banach manifolds. 53 #1624
**Crumeyrolle, Albert** (*with* Timbeau, Jean) Gradient symplectique réduit et condition de Klein-Gordon. (English summary) 52 #11978
Un formalisme lié à la "seconde quantification" sur les fibrés spinoriels orthogonaux ou symplectiques. (English summary) 53 #14526
**Desalvo, Fausto** Ancora sulle omografie tangenti a una applicazione fra varietà differenziabili munite di atlante omografico. 52 #1761
**Harle, Carlos Edgard** A note on the geometry of distributions. (Portuguese) 58 #31155
**Haubitz, Imme** Nichtlineare Zusammenhänge in Bündeln von Grassmann-Kegeln. 50 #8590
**Klein, Tomáš** Certain relation between vector fields and distributions on a differentiable manifold. (Loose Russian summary) 56 #3873
**Kolář, Ivan** On some operations with connections. 52 #11979
**Landa, S. E.** *See* **Šapiro, Ja. L.,** 56 #13248
**Lecomte, Pierre-Claude** Infinitesimal automorphisms and complete integrability of distributions. (French summary) 57 #1534
**Levine, Harold I.** (*with* Shub, Michael) Stability of foliations. 48 #9750
**Libermann, Paulette** Sur quelques propriétés des systèmes de Pfaff. (Italian summary) 54 #8692
**Miniconi, Michel** Familles de feuilletages analytiques. 50 #1278
**Navickis, K. V.** Intrinsic normalizations of a certain hyperplane distribution in an affine space. (Russian. Lithuanian and English summaries) 58 #24315
**Neagu, Alexandru** Sur les distributions structurelles d'une $G$-structure. (Italian summary) 54 #8693
Distributions and $G$-structures. (Romanian. English summary) 50 #5838
Sur les derivées d'une distribution. 56 #6694
**Pesin, Ja. B.** The existence of invariant foliations for a diffeomorphism of a smooth manifold. (Russian) 49 #8049
**Pradines, Jean** Remarque sur le théorème d'annulation de Bott-Martinet. (English summary) 53 #9273
**Roşca, Radu** On Vranceanu spaces. 57 #7640
**Šapiro, Ja. L.** (*with* Landa, S. E.) Direction fields on 2-manifolds. (Russian) 56 #13248
**Shub, Michael** *See* **Levine, Harold I.,** 48 #9750
**Šinkūnas, J.** The $m$-plane distribution in an $n$-dimensional Riemannian space. (Russian. English summary) 52 #15530
**Sluhaev, V. V.** Differential systems on a fibered manifold. (Russian) 50 #1279
**Stefan, Peter** *See* **Chillingworth, David,** 53 #1624
**Sussmann, Héctor J.** Orbits of families of vector fields and integrability of systems with singularities. 46 #10020
Orbits of families of vector fields and integrability of distributions. 47 #9666
**Švec, Alois** On 3-dimensional Lie algebras of vector fields. 53 #6608
**Tabov, Ĭ. B.** The extension of resolving distributions of Pfaffian systems. (Russian) 53 #9274
The existence of resolving distributions of dimension $n-r-1$ and $n-r-2$ of a Pfaffian system of rank $r$ in $R^n$. (Russian) 53 #9275
**Tan, Sin Leng** On nullity distributions. 54 #11372
**Timbeau, Jean** *See* **Crumeyrolle, Albert,** 52 #11978
**Turiel, Francisco Javier** Transport de champs de vecteurs et feuilletages. (English summary) 54 #13963
Sous-algèbres de champs de vecteurs complets d'une distribution. (English summary) 58 #31156
Distributions sur des variétés de dimension finie et intégrabilité. (English summary) 57 #7641
**Vifljancev, V. P.** The Frobenius theorem for distributions with singularities. (Russian) 56 #16663
**Weszely, T.** Sur les vecteurs tangents aux variétés fermées définies sur sphères. 45 #7634

Secondary classifications:

**Apreutesei, Costache** $G_T$-structures et connexions généralisées. (51 #11337)
Quelques propriétés des $G_T$-structures. (50 #14565)
**Gorbacevič, V. V.** A generalized Ljapunov theorem on Mal'cev manifolds. (Russian) (50 #538)
**Kaĭzer, V. V.** Extensions, restrictions and conjugate directions of differentiable distributions in multidimensional projective spaces. (Russian) (55 #3984)
**Kamga, Jean Wouafo** *See* **Pradines, Jean,** (54 #1254)
**Lecomte, Pierre-Claude** Regular distributions and factorizations of subimmersions. (French summary) (57 #1509)
**Libermann, Paulette** Sur les systèmes de Pfaff totalement réguliers. (57 #17684)
**Malgrange, Bernard** Frobenius avec singularités. I. Codimension un. (58 #22685a)
Frobenius avec singularités. II. Le cas général. (58 #22685b)
**Nazarov, F.** Conditions for the complete solvability of multidimensional differential equations. (Russian. Tajiki summary) (53 #13769)
**Pradines, Jean** (*with* Kamga, Jean Wouafo) Relations d'équivalence transversalement différentiables. (English summary) (54 #1254)
**Rawnsley, J. H.** On the cohomology groups of a polarisation and diagonal quantisation. (58 #31147)
**Sadler, Charles** Étude des bouts des trajectoires des champs de vecteurs holomorphes sur les espaces projectifs complexes. (46 #915)
**Šapiro, Ja. L.** The two-sheeted structure on a reducible Riemannian manifold. (Russian) (48 #2950)
**Sekizawa, Masami** *See* **Tachibana, Shun-ichi,** (51 #1668)
**Strelcyn, Jean-Marie** Flots sur le tore et nombres de rotation. (46 #4569)
**Tachibana, Shun-ichi** (*with* Sekizawa, Masami) On the $k$-th nullity space of the Riemannian curvature tensor. (51 #1668)
**Ver Eecke, Paul** Équations différentielles totales dans les espaces vectoriels topologiques. (53 #1633)

## 58A99 None of the above, but in this section

**Berezin, F. A.** (*with* Leĭtes, D. A.) Supermanifolds. (Russian) 53 #6609
**Bernšteĭn, I. N.** (*with* Leĭtes, D. A.) How to integrate differential forms on supermanifolds. (Russian) 56 #13249
**Chen, Kuo-Tsai** Extension of $C^\infty$ function algebra by integrals and Malcev completion of $\pi_1$. 56 #16664
**(Chen, T. K.)** *See* **Lehmann, Daniel,** 57 #17686
**Field, Mike J.** Transversality in $G$-manifolds. 56 #9563
**Géorgiev, Géorgi Iv.** Sur la dérivation de Lie dans les variétés de Banach. 49 #4013
**Huhunašvili, Z. V.** Symmetry of a space and of a field. (Russian) 58 #31157
**Kirillov, A. A.** Invariant differential operators on geometric quantities. (Russian) 56 #9564
**Lapkovs'kiĭ, A. K.** *See* **Laptins'kiĭ, V. M.,** 51 #11564
**Laptins'kiĭ, V. M.** (*with* Lapkovs'kiĭ, A. K.) Certain matrix operators, and their application in the theory of a linear connection on a differentiable manifold. (Russian) 51 #11564
**Lehmann, Daniel** Intégrales itérées (d'après Chen). 57 #17686
**Leĭtes, D. A.** *See* **Berezin, F. A.,** 53 #6609 *and* **Bernšteĭn, I. N.,** 56 #13249
**Määttä, Eljas** On smooth projection functions defined on surfaces in Banach spaces. 56 #6695
**Pustelnik, Mirosław** Sufficient conditions for the existence of a scalar product on a generalized module of vector fields. 52 #15531
**Raševskiĭ, P. K.** A hypertensor analogue of the de Rham complex, and Pontrjagin classes. (Russian) 56 #13250
**Sussmann, Héctor J.** A generalization of the closed subgroup theorem to quotients of arbitrary manifolds. 54 #13964
**Torquati, Franco** Proprietà funtoriali della coomologia di Allendoerfer-Eells. (English summary) 55 #9139
**Vasil'ev, A. M.** Semivector fields in fiber bundles. (Russian. English summary) 57 #17687
**Waliszewski, Włodzimierz** On some operation on sets of mappings. 46 #8258
On a coregular division of a differential space by an equivalence relation. 52 #9272

Secondary classifications:

**Albert, Claude** (*with* Molino, Pierre) Variétés lisses. Faisceau structural et cohomologie. (49 #1527)
**Chen, Kuo-Tsai** Iterated path integrals. (56 #13210)
Pullback de Rham cohomology of the free path fibration. (57 #17678)
**Gawędzki, K.** Supersymmetries—mathematics of supergeometry. (58 #9092)
**Gusman, S. Ja.** A boundary value problem for differential forms of the class $_1H_a$. (Russian) (57 #4204)
**Kamga, Jean Wouafo** *See* **Pradines, Jean,** (51 #8979)
**Kock, Anders** A simple axiomatics for differentiation. (56 #12098)
**Molino, Pierre** *See* **Albert, Claude,** (49 #1527)
**Pradines, Jean** (*with* Kamga, Jean Wouafo) Composition et décomposition irréductible des objets géométriques d'ordres supérieurs. (English summary) (51 #8979)
**Taylor, Jean E.** The structure of singularities in soap-bubble-like and soap-film-like minimal surfaces. (55 #1208a)
The structure of singularities in solutions to ellipsoidal variational problems with constraints in $R^3$. (55 #1208b)

## 58Bxx Infinite-dimensional manifolds [See also 57A20.]

Secondary classifications:

**Marinescu, Gheorghe** ★Tratat de analiză funcţională. Vol. II. (Romanian) [Treatise on functional analysis. Vol. II] (51 #6337)

### 58B05 Homotopy and topological questions

**Asada, Akira** Alexander-Spanier cochains of degree $\infty - p$. 53 #4116

**Bessaga, Czesław** ★Topics from infinite dimensional topology. $\mathcal{K}$-skeletons and Anderson's $Z$-sets. 46 #6388

**Brüning, Jochen** (*with* Willgerodt, Wolfgang) Eine Verallgemeinerung eines Satzes von N. Kuiper. 53 #9276

**Burghelea, Dan** (*with* Duma, Andrei) Analytic complex structures on Hilbert manifolds. 45 #1202

*See also* **Kuiper, Nicolaas H.**, 51 #9109

**Chapman, T. A.** Deficiency in infinite-dimensional manifolds. 48 #1259

On the structure of Hilbert cube manifolds. 46 #4562

Contractible Hilbert cube manifolds. 45 #9359

Homotopic homeomorphisms of infinite-dimensional manifolds. 49 #4014

**Corson, H. H.** Some thin sets in Fréchet spaces. 54 #13965

**Cutler, William H.** Deficiency in $F$-manifolds. 45 #7759

Coverings of infinite-dimensional spheres. 47 #7766

**Dobrowolski, Tadeusz** Relative classification of smooth convex bodies. (Russian summary) 57 #4213

**Duma, Andrei** *See* **Burghelea, Dan**, 45 #1202

**Eells, James, Jr.** (*with* Fournier, Gilles) Applications asymptotiquement compactes. (English summary) 52 #4330

**Elworthy, K. David** Embeddings, isotopy and stability of Banach manifolds. 46 #4563

**Fournier, Gilles** *See* **Eells, James, Jr.**, 52 #4330

**Furi, Massimo** (*with* Martelli, Mario) On $\alpha$-Lipschitz retractions of the unit closed ball onto its boundary. (Italian summary) 52 #15532

**Gęba, Kazimierz** (*with* Granas, Andrzej) On the cohomology theory in linear normed spaces. 54 #6179

(*with* Granas, Andrzej) Infinite dimensional cohomology theories. 52 #1762

**Graff, Richard A.** On paracompact subsets of linear topological spaces. 53 #4117

**Granas, Andrzej** *See* **Gęba, Kazimierz**, 52 #1762 *and* **Gęba, Kazimierz**, 54 #6179

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**Heinz, Hans-Peter** Un principe de maximum-minimum pour les valeurs critiques d'une fonctionnelle non linéaire. 46 #8259

**Heisey, Richard E.** Partitions of unity and a closed embedding theorem for $(C^p,b^*)$-manifolds. 53 #1625

Manifolds modelled on $R^\infty$ or bounded weak-* topologies. 53 #1626

Stability, open embeddings, and classification of bounded weak-* manifolds. 54 #11373

**Kac, M. P.** Vector bundles as continuous families of spaces. (Russian) 57 #10722

**Krikorian, Nishan** Invariance of domain in Banach spaces. 54 #13966

**Kuiper, Nicolaas H.** ★Variétés hilbertiennes: aspects géométriques. 51 #9109

**Leray, J.** Fixed point index and Lefschetz number. 53 #11646

**Luna, George** Connectedness of certain subsets of locally convex spaces. 57 #4214

**Martelli, Mario** *See* **Furi, Massimo**, 52 #15532

**Maxim-Răileanu, Liliana** On the refinements of a banachical principal fibre bundle. (Italian summary) 51 #11565

**McCoy, Robert A.** Groups of homeomorphisms of normed linear spaces. 46 #8261

**Mihai, Anastasie** Affine transformations on Banach manifolds. (Italian summary) 57 #1535

**Mirzahanjan, È. A.** Infinite-dimensional homotopy groups of the unit sphere in Hilbert space. (Russian. Armenian summary) 57 #10723

Computation of the infinite-dimensional homotopy groups of compact type of the unit sphere of the Hilbert space. (Russian. Armenian and English summaries) 53 #6610

Homotopy invariance of infinite-dimensional homotopy groups. (Russian. Armenian summary) 58 #13119

**Mogilski, J.** Hereditarily negligible subsets of infinite-dimensional Fréchet manifolds. (Russian summary) 55 #11289

**Nguyễn-van-khuê** (*with* Ha Zuï Hoaï) Holomorphic mappings on Banach manifolds. (Russian) 48 #3072

**Nussbaum, Roger D.** Generalizing the fixed point index. 55 #13461

**Ogrodzka, Z.** Every paracompact $C^m$-manifold modelled on the infinite countable product of lines is $C^m$-stable. 51 #9110

**Prakash, N.** A note on locally trivial fibrations. 50 #3264

**Renz, Peter L.** Smooth extensions in infinite dimensional Banach spaces. 45 #7761

**Riley, Charles A.** An extension of a theorem of Bessaga. 53 #6611

**(Szankowski, Andrzej)** *See* **Bessaga, Czesław**, 46 #6388

**Vladimirskiĭ, Ju. N.** Remarks on the Palais-Schwartz theorem. (Russian) 56 #1340

**West, James E.** Products of complexes and Fréchet spaces which are manifolds. 45 #2756

**Willgerodt, Wolfgang** *See* **Brüning, Jochen**, 53 #9276

**Wong, Raymond Y. T.** Homotopy negligible subsets of bundles. 46 #6389

Periodic actions on (I-D) normed linear spaces. 48 #3073

Secondary classifications:

**Abe, Kōjun** (*with* Fukui, Kazuhiko) On commutators of equivariant diffeomorphisms. (57 #13980)

**Anderson, R. D.** Homeomorphisms on infinite-dimensional manifolds. (56 #13225)

**de Andrade, Rubens Leão** Complete convex hypersurfaces of a Hilbert space. (54 #8718)

**Barit, W.** (*with* Wood, G. R.) Differentiable retracts and a modified inverse function theorem. (57 #17692)

**Bessaga, Czesław** (*with* Pełczyński, A.) ★Selected topics in infinite-dimensional topology. (57 #17657)

**Boltjanskiĭ, V. G.** A certain class of mappings of Hilbert space. (Russian. Armenian summary) (57 #4226)

(*with* Mirzahanjan, È. A.) The degree of a mapping in Hilbert space. (Russian. Armenian summary) (57 #4227)

A certain class of mappings of subsets of Hilbert space. (Russian. Armenian and English summaries) (57 #4229)

**Brown, Lawrence G.** (*with* Douglas, Ronald G.; Fillmore, P. A.) Extensions of $C^*$-algebras, operators with compact self-commutators, and $K$-homology. (49 #11265)

**Chapman, T. A.** (*with* Wong, Raymond Y. T.) On homeomorphisms of infinite dimensional bundles. II. (54 #3708b)

(*with* Wong, Raymond Y. T.) On homeomorphisms of infinite dimensional bundles. III. (54 #3708c)

★Lectures on Hilbert cube manifolds. (54 #11336)

**Dobrowolski, Tadeusz** Negligibility of subsets and extension of homeomorphisms in smooth and $R$-analytic categories. (Russian summary) (57 #1543)

**Douglas, Ronald G.** *See* **Brown, Lawrence G.; et al.**, (49 #11265)

**Edmunds, David Eric** (*with* Webb, Jeffrey Ronald Leslie) Some generalizations of the Borsuk-Ulam theorem. (56 #6480)

**Enomoto, Masatoshi** (*with* Fujii, Masatoshi; Takehana, Hiroaki) On a conjecture of Breuer. (56 #12910)

**Fillmore, P. A.** *See* **Brown, Lawrence G.; et al.**, (49 #11265)

**Fujii, Masatoshi** *See* **Enomoto, Masatoshi; et al.**, (56 #12910)

**Fukui, Kazuhiko** *See* **Abe, Kōjun**, (57 #13980)

**Granas, Andrzej** Generalizing the Hopf-Lefschetz fixed point theorem for non-compact ANRs. (53 #14475)

**Hansen, Vagn Lundsgaard** Some theorems on direct limits of expanding sequences of manifolds. (47 #7751)

On the homotopy type of certain spaces of differentiable maps. (48 #1261)

**Harris, Lawrence A.** (*with* Kaup, Wilhelm) Linear algebraic groups in infinite dimensions. (57 #544)

**Heisey, Richard E.** Open subsets of $R^\infty$ are stable. (54 #13923)

**Kaup, Wilhelm** *See* **Harris, Lawrence A.**, (57 #544)

**Knill, Ronald J.** On the relationship of local to global fixed-point indexes. (53 #9200)

**Koschorke, Ulrich** Pseudo-compact subsets of infinite-dimensional manifolds. (46 #2679)

**Kučment, P. A.** A remark on the homotopy type of the group of $J$-unitary operators. (Russian) (57 #13572)

**Lazar, Aldo J.** Extreme boundaries of convex bodies in $l_2$. (51 #13642)

**Mednikov, L. É.** Stable and bistable homeomorphisms. (Russian) (48 #4988)

**Mirzahanjan, È. A.** Construction of infinite-dimensional homotopy groups. (Russian. Armenian and English summaries) (57 #7657)

The dependence of infinite-dimensional homotopy groups on the base point. (Russian. Armenian summary) (57 #4167)

*See also* **Boltjanskiĭ, V. G.**, (57 #4227)

**Mitjagin, B. S.** The homotopy structure of a linear group of a Banach space. (Russian) (49 #6274a)

**Nirenberg, L.** Generalized degree and nonlinear problems. (52 #9025)

**Pełczyński, A.** *See* **Bessaga, Czesław**, (57 #17657)

**Ribe, M.** On uniformly homeomorphic normed spaces. (55 #13215)

**Satô, Hiroshi** An I. L. B. Lie subgroup of $O(\mathbb{S})$. (47 #6949)

**Stesin, M. I.** The Aleksandrov diameters of balls in Banach spaces. (Russian) (53 #3654)

**Takehana, Hiroaki** *See* **Enomoto, Masatoshi; et al.**, (56 #12910)

**Terry, Wesley E.** Conditions for a TVS to be homeomorphic with its countable product. (49 #3489)

**Tomšič, Gabrijel** ★Novi rezultati v neskončno dimenzionalni topologiji. (Slovenian) [New results in infinite-dimensional topology] (51 #1832)

**Webb, Jeffrey Ronald Leslie** *See* **Edmunds, David Eric**, (56 #6480)

**Wong, Raymond Y. T.** On homeomorphisms of $\infty$-dimensional bundles. (54 #3707)

On homemorphisms of certain infinite dimensional spaces. (54 #8641)

Parametric extension of homeomorphisms on $s$-manifolds. (51 #6822)

On homeomorphisms of infinite-dimensional bundles. I. (54 #3708a)

*See also* **Chapman, T. A.**, (54 #3708b) *and* **Chapman, T. A.**, (54 #3708c)

**Wood, G. R.** *See* **Barit, W.**, (57 #17692)

**Wulbert, Daniel E.** Representations of the spaces of Lipschitz functions. (49 #9604)

### 58B10 Differentiable and holomorphic questions

**Abibi, Daniel** Structure presque tangente sur une variété banachique. 51 #9111

**Bejancu, Aurel** $P$-variétés. 54 #8694

On a class of Banach manifolds. (Romanian. French summary) 50 #8591

Théorèmes globaux dans la théorie des groupes de Lie-Banach. (Romanian summary) 55 #4249

Sur les variétés munies d'une structure algébrique. (Italian summary) 53 #11647

**Colombeau, Jean-François** Sur la différentiabilité dans les espaces de Fréchet. 52 #9273

**Desolneux-Moulis, Nicole** Variétés hilbertiennes de dimension infinie. 52 #15534

**Dineen, Seán** Cousin's first problem on certain locally convex topological vector spaces. 55 #11290

**Dobrowolski, Tadeusz** On smooth countable dense homogeneity. (Russian summary) 55 #9140

**Gähler, Siegfried** (*with* Gähler, Werner) Beiträge zu einer streng komplexen Analysis. 53 #1627

(*with* Gähler, Werner) Über die Anwendung streng komplexer Strukturen in der Theorie der Mannigfaltigkeiten. 53 #1628

**Gähler, Werner** *See* **Gähler, Siegfried**, 53 #1627 *and* **Gähler, Siegfried**, 53 #1628

**Graff, Richard A.** Théorie des variétés de dimension infinie: théorie locale. 52 #15533

**Hahn, Kyong T.** Trigonometry on the unit ball of a complex Hilbert space. 51 #4305

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**Barroso, Jorge Alberto** Topologies in spaces of holomorphic mappings between locally convex spaces. (Portuguese) (**46** #7874)

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**Berner, Paul D.** Holomorphy on surjective limits of locally convex spaces. (Italian summary) (**58** #2274)

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**Chevallier, Dominique** Variétés bimodelées et systèmes dynamiques en dimension infinie. (**56** #9584)

**Colombeau, Jean-François** Sur quelques particularités du calcul différentiel dans les espaces vectoriels topologiques ou bornologiques. (**50** #14214)

**Desalvo, Fausto** Ancora sulle omografie tangenti a una applicazione fra varietà differenziabili munite di atlante omografico. (**52** #1761)

**Field, Mike J.** Complex analysis on Banach spaces. (**55** #8790)

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**Ismagilov, R. S.** The unitary representations of the group of diffeomorphisms of a compact manifold. (Russian) (**46** #908)

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**Kaballo, Winfried** Holomorphe Störungstheorie in lokalkonvexen Räumen. (English summary) (**53** #3744)

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**Krikorian, Nishan** Differentiable structures on function spaces. (**47** #1082)

**Lobuzov, A. A.** $R^{(\infty)}$ is diffeomorphic to $R^{(\infty)} \setminus \{0\}$. (Russian) (**58** #7639)

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**Nachbin, Leopoldo** (*with* Barroso, Jorge Alberto) Sur certaines propriétés bornologiques des espaces d'applications holomorphes. (**52** #15006)

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**Petzeltová, H.** (*with* Vrbová, Pavla) An underrelaxed modification of Newton's method. (**57** #17691)

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**Gähler, Siegfried** (*with* Gähler, Werner) Zur komplexen Differentialgeometrie von Mannigfaltigkeiten, die über Banach-Räumen modelliert sind. **45** #2751

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**Ghosh, N. N.** Generalized bra and ket vectors in infinitesimal geometry. **58** #2850

**Jonker, Leo B.** Hypersurfaces of nonnegative curvature in a Hilbert space. **46** #6391

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**Kanitani, Jôyô** Sur une variété localement applicable dans l'espace projectif à dimension infinie. **54** #8695

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**Marsden, Jerrold Eldon** Darboux's theorem fails for weak symplectic forms. **45** #2755

**Maxim-Răileanu, Liliana** The geometry of the prolongations of Banach fibrations. (Romanian. French and Russian summaries) **45** #6038

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**Piech, M. Ann** The exterior algebra for Wiemann manifolds. **58** #2851

**Plymen, R. J.** (*with* Streater, R. F.) A model of the universal covering group of $\mathrm{SO}(H)_2$. **52** #6773

**Ravaska, Timo** On curves in a complex Hilbert space. **58** #18525

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**Tong Van Duc** Connexions non linéaires et équations de structure. **49** #4017a

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**Tromba, Anthony J.** Almost-Riemannian structures on Banach manifolds: the Morse lemma and the Darboux theorem. **53** #6613

**Vassiliou, Efstathios E.** Christoffel symbols and connection forms on infinite-dimensional fibre bundles. **58** #31161

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**Beem, John K.** Symmetric perpendicularity for indefinite Finsler metrics on Hilbert manifolds. (**52** #4164)

**Bernšteĭn, I. N.** (*with* Rosenfel′d, B. I.) Homogeneous spaces of infinite-dimensional Lie algebras and the characteristic classes of foliations. (Russian) (**54** #3714)

**Cantoni, Vittorio** Intrinsic geometry of the quantum-mechanical "phase space", Hamiltonian systems and correspondence principle. (Italian summary) (**58** #19996)

**Günther, Christian** Prequantum bundles and projective Hilbert geometries. (**56** #13275)

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**Hurt, Norman E.** Differential geometry of canonical quantization. (French summary) (**45** #6041)

**Penot, Jean-Paul** Topologie faible sur des variétés de Banach. (**46** #914)

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**Baxendale, Peter** Markov processes on manifolds of maps. (**53** #11657)

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Sur les groupes de Lie-Banach. (Romanian summary) (**48** #11394)

Théorèmes d'immersion pour certains groupes de Lie-Banach. (Italian summary) (**51** #13144)

Structure theorems for a Banach Lie loop. (**56** #1348)

**Browder, Félix E.** Asymptotically orientation-preserving mappings in Banach spaces. (**55** #11109)

**Choquet-Bruhat, Y.** Quelques propriétés des sousvariétés maximales d'une variété lorentzienne. (English summary) (**58** #30940)

**Colombeau, Jean-François** Sur les équations différentielles dans les espaces vectoriels topologiques ou bornologiques. (**52** #3957)

**Dalec'kiĭ, Ju. L.** Integration in function spaces and differential equations with functional derivatives. (**46** #317)

**Dupré, Maurice J.** Classifying Hilbert bundles. (**49** #11266)

**Frolov, N. N.** Embedding theorems for functions of a countable number of variables and their applications to the Dirichlet problem. (Russian) (**46** #659)

**Ghosh, N. N.** Infinitesimal geometry in Hilbert space. I, II, III. (**45** #6037)

**de la Harpe, Pierre** The Clifford algebra and the spinor group of a Hilbert space. (**47** #5616)

**Kanitani, Jôyô** Sur l'existence des intégrales d'un système d'équations différentielles aux fonctions inconnues de nombre infini. (**54** #1280)

**Kučment, P. A.** The index of Fredholm operators in a family of Banach spaces. (Russian) (**46** #695)

**Kuo, Hui Hsiung** Diffusion and Brownian motion on infinite-dimensional manifolds. (**46** #8316)

**Omori, Hideki** On Banach-Lie groups acting on finite dimensional manifolds. (**58** #28320)

**Pham Mau Quan** Pseudogroupes de transformations et connexions linéaires sur un fibré vectoriel. (**49** #11578)

**Pisanelli, Domingos** The Lie first theorem in a locally convex space. (**57** #6302)

**Plymen, R. J.** (*with* Young, R. M. G.) On the spin algebra of a real Hilbert space. (**52** #1345)

Spinors in Hilbert space. (**54** #7707)

**Ramis, Jean-Pierre** ★Sous-ensembles analytiques d'une variété banachique complexe. (**45** #2205)

**Reichert, Marianne** Trennung kompakter Mengen in unendlich dimensionalen, normierten Vektorräumen. (**47** #5878)

**Sambors'kiĭ, S. M.** The existence of solutions of linear differential equations in Banach spaces and bundles. (Russian) (**51** #6079)

**Verozub, L. V.** $\tilde{E}$-spaces. (Ukrainian. English and Russian summaries) (**48** #4736)

**Young, R. M. G.** *See* **Plymen, R. J.,** (**52** #1345)

**Zaĭdenberg, M. G.** Complex analytic Banach manifolds in connection with problems operator theory. (Russian) (**47** #4063)

## 58Cxx Calculus on manifolds

Secondary classifications:

**Krasnosel'skiĭ, M. A.** (*with* Zabreĭko, P. P.) ★Геометрические методы нелинейно анализа. (Russian) [Geometric methods of nonlinear analysis] (**58** #17976)

**Zabreĭko, P. P.** *See* **Krasnosel'skiĭ, M. A.,** (**58** #17976)

### 58C05 Real-valued functions

**Berežnoĭ, E. I.** Differentiable mappings in finite-dimensional spaces. (Russian) **56** #16666

**Brunovský, Pavol** On one-parameter families of diffeomorphisms. II. Generic branchi in higher dimensions. **46** #8241

**Chenais, Denise** Champ de vecteurs lipschitziens jouant le rôle de normales pour d ouverts lipschitziens de $\mathbf{R}^n$. (English summary) **56** #1342

**Chua, Leon O.** (*with* Lam, Ying Fai) Global homeomorphism of vector-valued functions. **46** #10006

**Dalla Vedova, Elivira Tognoli** Su una forma del teorema di Stone-Weierstrass. (Engli summary) **55** #6467

**Derridj, Makhlouf** (*with* Zuily, Claude) Régularité $C^\infty$ au bord d'une classe d'opérateurs dégénérés. **54** #3766

**Eells, James, Jr.** (*with* McAlpin, John) An approximate Morse-Sard theorem. **53** #11650

**Gorin, E. A.** (*with* Lin, V. Ja.) Separable polynomials over commutative Banach algebras. (Russian) **51** #14137

**Huff, Melvyn** Conformal maps on Hilbert space. **52** #15536

**Lam, Ying Fai** *See* **Chua, Leon O., 46** #10006

**Laptins'kiĭ, V. M.** The differentiation of parametric functions of matrices. (Russia **56** #6699

**Lasry, Jean-Michel** (*with* Robert, Raoul) Degré et théorèmes de point fixe pour fonctions multivoques: applications. **53** #4120

(*with* Robert, Raoul) Degré pour les fonctions multivoques et applicatio (English summary) **51** #14138

(*with* Robert, Raoul) Acyclicité de l'ensemble des solutions de certaines équations fonctionnelles. (English summary) **55** #9143

(*with* Robert, Raoul) Degré topologique pour certains couples de fonctions applications aux équations différentielles multivoques. (English summary) **55** #91

**Lin, V. Ja.** *See* **Gorin, E. A., 51** #14137

**Maĭstrov'skiĭ, G. D.** (*with* Ol'hovskiĭ, Ju. G.) On the theory of conditional minimizatio (Russian) **50** #14831

**McAlpin, John** *See* **Eells, James, Jr., 53** #11650

**O'Farrell, Anthony G.** Functions with smooth extensions. **55** #4252

**Ol'hovskiĭ, Ju. G.** *See* **Maĭstrov'skiĭ, G. D., 50** #14831

**Polons'ka, T. V.** Analogue of transversality and Weierstrass-Erdmann conditions f functionals of vector-valued functions in a Banach space. (Ukrainian. Russian summary) **58** #24320

**Robert, Raoul** *See* **Lasry, Jean-Michel, 51** #14138; **Lasry, Jean-Michel, 53** #4120; **Lasry, Jean-Michel, 55** #9143 *and* **Lasry, Jean-Michel, 55** #9144

**Samovol, V. S.** *See* **Zorič, V. A., 46** #902

**Shiota, Masahiro** Some results on formal power series and differentiable functio **54** #3742

**Treccani, Giulio** On the critical points of continuously differentiable functions. **52** #15537

**Tromba, Anthony J.** The Morse-Sard-Brown theorem for functionals and the problem Plateau. **57** #4219

**Zaĭdenberg, M. G.** Reduction to canonical form of matrices that depend on paramete (Russian) **49** #9864

**Zorič, V. A.** (*with* Samovol, V. S.) Certain conditions for the mapping of the space on cylindrical domains. (Russian) **46** #902

**Zuily, Claude** *See* **Derridj, Makhlouf, 54** #3766

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**Alexander, Stephanie** (*with* Bishop, Richard L.) Convex-supporting domains on spher (**48** #7158)

**Baratta, Maria Antonietta** Sulla varietà delle derivate direzionali di una funzione un'algebra reale con unità. (English summary) (**56** #3316)

**Bishop, Richard L.** *See* **Alexander, Stephanie,** (**48** #7158)

**Borisovič, Ju. G.** (*with* Margulis, L. M.) On the theory of topological degree of nonlinear noncompact mappings. (Russian) (**56** #9577)

**Calica, Arnold B.** Reversible homeomorphisms of the real line. (**46** #6265)

**Costinescu, Olga** Sur un type de dérivée pour les fonctions d'ensemble. (English summary) (**54** #7733)

**Dolecki, Szymon** (*with* Kurcyusz, Stanisław) Convexité généralisée et optimisation. (English summary) (**54** #12209)

**Epstein, D. B. A.** Natural tensors on Riemannian manifolds. (**54** #3617)

**Fiby, Rudolf** The structure of tangentors and their morphisms. (**57** #17685)

**de Guzmán, Miguel** An extension of Sard's theorem. (**49** #11558)

**Kurcyusz, Stanisław** *See* **Dolecki, Szymon,** (**54** #12209)

**Margulis, L. M.** Certain geometric properties of surfaces in a Banach space and the applications to the theory of topological degree. (Russian) (**56** #9578)

*See also* **Borisovič, Ju. G.,** (**56** #9577)

**Souček, Jiří** (*with* Souček, Vladimír) The Morse-Sard theorem for real-analytic functions. (**52** #14204)

**Souček, Vladimír** *See* **Souček, Jiří**, (**52** #14204)

**Wan, Yieh Hei** On the algebraic criteria for local Pareto optima. I. (**55** #4270)

## 58C10 Holomorphic maps

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**Chmielowski, Jan** Théorèmes d'identité en dimension infinie. **57** #1539

**Dwyer, Thomas A. W., III** Équations différentielles d'ordre infini dans des espaces localement convexes. (English summary) **54** #6180

**Kajiwara, Joji** Solutions holomorphes globales des équations différentielles linéaires à valeurs dans un espace de Hilbert et à paramètre complexe. **55** #13464

**Krée, Paul R.** Holomorphie et théorie des distributions en dimension infinie. **58** #2852

**Ławrynowicz, Julian** (*with* Skwarczyński, Maciej) Conformal and biholomorphic invariants in the analysis on manifolds. **58** #24321

**Lazet, Daniel** Applications analytiques dans les espaces bornologiques. **55** #1376

**Łojasiewicz, Stanisław** An example of continuous injective polynomial with nowhere dense range, whose differential at each point is an isomorphism. (Russian summary) **55** #11292

**Maire, Henri-Michel** Sur les distributions images réciproques par une fonction analytique. **56** #13253

**Raboin, Pierre** Étude de l'équation $\bar{\partial} f=g$ sur un espace de Hilbert. **54** #6181

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**Trofimov, V. P.** The characteristic points of Fredholm operator valued functions. (Russian) **56** #9567

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**Alencar, Raymundo** Développement d'opérateurs linéaires entre espaces $H(K)$. (English summary) (**54** #5830)

**Aron, Richard M.** Holomorphic functions on balanced subsets of a Banach space. (**46** #4197)

Compact polynomials and compact differentiable mappings between Banach spaces. (**54** #5831)

**Aurich, Volker** Fonctions méromorphes sur $\mathbf{C}^{\Lambda}$. (**58** #1252)

**Besjes, J. G.** (*with* Martini, R.) Separately analytic functions of infinite many variables. (**57** #16658)

**Boland, Philip J.** (*with* Dineen, Seán) Duality theory for spaces of germs and holomorphic functions on nuclear spaces. (**58** #30214)

**Dineen, Seán** Holomorphic functions on strong duals of Fréchet-Montel spaces. (**58** #12360)

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**Dubson, Alberto S.** Majorations "Hölder" de l'intégration le long des fibres d'une application analytique. (English summary) (**58** #22679)

**Dwyer, Thomas A. W., III** Differential equations of infinite order in vector-valued holomorphic Fock spaces. (**58** #2266)

**Fedorjuk, M. V.** Asymptotic behavior of the Fourier transform of the exponential of a polynomial. (Russian) (**54** #3006)

**Field, Mike J.** Complex analysis on Banach spaces. (**55** #8790)

**Greenfield, Stephen J.** Approximation and homotopy properties for holomorphic extension in $l^2$. (**54** #7846)

**Hayashi, Mikihiro** Implicit function theorem for Banach algebras. (**53** #3709)

**Hayden, T. L.** (*with* Suffridge, Teddy J.) Fixed points of holomorphic maps in Banach spaces. (**54** #5917)

**Hogbe-Nlend, Henri** Applications analytiques entre espaces et algèbres bornologiques. (**56** #16374)

**Josefson, Bengt** Some remarks on Banach valued polynomials on $C_0(A)$. (**58** #23590)

**Kaup, Wilhelm** (*with* Upmeier, Harald) Banach spaces with biholomorphically equivalent unit balls are isomorphic. (**54** #10690)

**Kiselman, Christer O.** Geometric aspects of the theory of bounds for entire functions in normed spaces. (**57** #12888)

**Krée, Paul R.** Théorie de la mesure et holomorphie en dimension infinie. (**57** #13477)

**Kurato, A.** The lifting of vector-valued functions. (Russian) (**53** #3356)

**Martini, R.** *See* **Besjes, J. G.**, (**57** #16658)

**de Matos, Mário Carvalho** On Malgrange theorem for nuclear holomorphic functions in open balls of a Banach space. (**58** #30226)

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**Moussu, Robert** (*with* Tougeron, Jean-Claude) Fonctions composées analytiques et différentiables. (English summary) (**53** #13628)

**Nachbin, Leopoldo** Limites et perturbation des applications holomorphes. (**58** #2279)

**Namba, Makoto** On stability of holomorphic maps of compact complex manifolds. (**56** #5951)

**Nouhaud, Odette** Applications harmoniques dans un tore et variétés homogènes. (English summary) (**58** #7700)

**Pankov, A. A.** Local continuation of holomorphic vector functions and expansions in special series. (Russian) (**56** #5937)

**Raboin, Pierre** Résolution de l'équation $\bar{\partial} f=F$ sur un espace de Hilbert. (**56** #16665)

**Rapp, Alain** L'équation "$\bar{\partial}$" avec décroissance au bord sur certains ouverts convexes d'un espace de Banach. (**54** #5503)

**Sapronov, Ju. I.** *See* **Začepa, V. R.**, (**58** #22517)

**Soraggi, Roberto Luiz** Bounded subsets in spaces of germs of holomorphic mappings. (Portuguese. English summary) (**58** #6372)

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**Upmeier, Harald** *See* **Kaup, Wilhelm**, (**54** #10690)

**Varčenko, A. N.** A theorem on topological versal deformations. (Russian) (**53** #5925)

**Vladimirov, V. S.** The Laplace transform of tempered distributions. (**56** #6380)

**Wasow, Wolfgang** Arnold's canonical matrices and the asymptotic simplification of ordinary differential equations. (**56** #9014)

**Začepa, V. R.** (*with* Sapronov, Ju. I.) Invariant curves in the neighborhood of a multiple fixed point of an analytic mapping of the plane. (Russian) (**58** #22517)

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## 58C15 Implicit function theorems

**Alexander, James C.** (*with* Yorke, James A.) The implicit function theorem and the global methods of cohomology. **53** #1630

**Altman, Mieczyslaw** The method of contractor directions for partial differential equations. **58** #2853

**(Bakel′man, I. Ja.)** *See* **Nash, John F.**, **58** #13123

**Berquier, Françoise** Un théorème d'inversion locale. **56** #1343

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**Bondarenko, V. A.** (*with* Zabreĭko, P. P.) A theorem of Jürgen Moser. (Russian) **56** #9568

**(Chow, Shui Nee)** *See* **Szostak, Ewa**, **55** #11293

**Cronin-Scanlon, Jane** A condition for openness. **46** #6373

**Dement′eva, A. M.** A certain method of constructing an implicit function. (Russian) **52** #11981

**Desolneux-Moulis, Nicole** Un théorème de fonctions implicites dans les espaces de Fréchet. Application à un problème de déformation de structures complexes. **53** #14527

**Fabián, Marian** On a modified Newton method for nonsmooth mappings. (Czech and Russian summaries) **57** #10725

**Fischer, Hans R.** On a certain class of $C(X)$-modules (preliminary report). **51** #1865

**Freeman, Michael** The inverse as a fixed point in function space. **53** #6614

**Fučík, Svatopluk** (*with* Nečas, Jindřich; Souček, Jiří; Souček, Vladimír) New infinite dimensional versions of Morse-Sard theorem. (Italian summary) **48** #3074

**Glaeser, Georges** Analyse de la technique de Nash-Moser. **54** #8698

**Glustoff, Errol** Differential properties of functions which are solutions to maximization or minimization problems. **55** #6468

**Gromov, M. L.** Smoothing and inversion of differential operators. (Russian) **46** #10022

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**Hadžić, Olga** Existence of an implicit function in locally convex spaces. (Serbo-Croatian. English summary) **53** #6615

**Krugljak, N. Ja.** A modification of J. Moser's theorem on the solvability of nonlinear equations. (Russian) **58** #18526

The Nash-Moser implicit function theorem and nonlinear interpolation. (Russian) **58** #31162

**(Lasota, Andrzej)** *See* **Szostak, Ewa**, **55** #11293

**Leborgne, Daniel** Sur le théorème des fonctions implicites. (English summary) **51** #1866

**Lin′kov, E. I.** A surface of zero Jacobian, and Newton's method. (Russian) **53** #4121

**Macchia, Roberto** On roots of differentiable functions. **58** #31163

**Matsumoto, Takashi** An implicit function theorem and its applications to nonlinear electrical networks. **58** #13122

**Methlouthi, Hamid** Sur le calcul différentiel multivoque. (English summary) **55** #13465

**Michor, Peter** A note on the inverse mapping theorem of F. Berquier. **56** #1344

**Moser, Jürgen K.** On a nonlinear problem in differential geometry. **49** #4018

**Nash, John F.** The imbedding problem for Riemannian manifolds. (Russian) **58** #13123

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**Nečas, Jindřich** *See* **Fučík, Svatopluk; et al.**, **48** #3074

**Petzeltová, H.** (*with* Vrbová, Pavla) An underrelaxed modification of Newton's method. **57** #17691

**Petzeltová, Hana** (*with* Vrbová, Pavla) A remark on small divisors problems. (Loose Russian summary) **58** #2854

**Plastock, Roy** Homeomorphisms between Banach spaces. **50** #8593

**Poénaru, Valentin** Un théorème des fonctions implicites pour les espaces d'applications $C^\infty$. **57** #14017

**Reiziņš, L. È.** A proof of the existence theorem for ordinary differential equations. (Russian. Latvian summary) **52** #9275

**Rogov, V.-B. K.** Quotient spaces of functions with a singularity. (Russian) **52** #15538

**(Sapožnikov, B. D.)** *See* **Nash, John F.**, **58** #13123

**Sergeraert, Francis** Un théorème de fonctions implicites sur certains espaces de Fréchet et quelques applications. **54** #6182

Un théorème de fonctions implicites. Applications. (English summary) **52** #15539

Une extension d'un théorème de fonctions implicites de Hamilton. **58** #13125

**Smoljanov, O. G.** The class of spaces in which the theorem on the bounded differentiability of the inverse function is valid. (Russian) **53** #6616

**Souček, Jiří** *See* **Fučík, Svatopluk; et al.**, **48** #3074

**Souček, Vladimír** *See* **Fučík, Svatopluk; et al.**, **48** #3074

**Suhinin, M. F.** Several theorems on inverse and implicit functions in linear topological spaces. (Russian) **52** #15540

**Sunada, Toshikazu** Non-linear elliptic operators on a compact manifold and an implicit function theorem. **51** #9114

**Szidarovszky, Ferenc** A note on iterations of Newton-Moser type. (Hungarian. English summary) **55** #9145

**Szilágyi, T.** Generalization of the implicit function theorem and of Banach's open mapping theorem. **58** #18527

Inverse function theorem—without assuming continuous differentiability. **57** #14018

**Szostak, Ewa** Note on: "An implicit function theorem for non differentiable mappings" (Proc. Amer. Math. Soc. **34** (1972), 141–146) by S. N. Chow and A. Lasota. **55** #11293

**Varian, Hal R.** A remark on boundary restrictions in the global Newton method. 56 #6700

**Ver Eecke, Paul** Sur l'inversion locale d'une famille d'applications. **57** #14019

**Vertgeim, B. A.** Certain generalizations of the Newton-Kantorovič method of approximate solution of nonlinear operator equations. (Russian) **53** #14528

**Vrbová, Pavla** *See* **Petzeltová, H.**, 57 #17691 *and* **Petzeltová, Hana**, 58 #2854

**Warga, Jack** An implicit function theorem without differentiability. **58** #7684

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**Zabreĭko, P. P.** *See* **Bondarenko, V. A.**, 56 #9568

**Zehnder, Edward J.** An implicit function theorem for small divisor problems. **49** #4019
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Moser's implicit function theorem in the framework of analytic smoothing. **52** #9276

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**Abramov, Ju. Š.** An analogue of Newton's method for certain classes of nonlinear eigenvalue problems. (Russian) (**55** #3899)

**Balabanov, V. A.** Lipschitz structure and differentiation operations in topological vector spaces. (Russian. Georgian summary) (**55** #4253)

**Beale, J. Thomas** The existence of solitary water waves. (**56** #3480)

**Braess, Dietrich** Über die Einzugsbereiche der Nullstellen von Polynomen beim Newton-Verfahren. (English summary) (**57** #14398)

**Brown, K. J.** Nonlinear boundary value problems and a global inverse function theorem. (**53** #6375)

**Caligaris, Ottavio** Sulla convergenza delle soluzioni di problemi di evoluzione associati a sottodifferenziali di funzioni convesse. (English summary) (**55** #8917)

**Cerezo, André** Équations à coefficients constants invariantes par un groupe de transformations linéaires. (**58** #1551)

**Cesari, Lamberto** Functional analysis and partial differential equations. (**58** #2493)

**Chow, Shui Nee** (*with* Hale, Jack K.; Mallet-Paret, John) Applications of generic bifurcations. I. (**52** #11675)

**Dement'eva, A. M.** The method of coarse corrections for approximate construction of an implicit function. (Russian) (**58** #31812)
A difference scheme for the construction of an implicit function with successive approximation of the inverse operators. (Russian. English summary insert) (**58** #3386)

**Edelen, Dominic G. B.** Differential procedures for systems of implicit relations and implicitly coupled nonlinear boundary-value problems. (**56** #17056)

**Eslinger, Robert C.** Existence of inverses and square roots in locally Banach semigroups with identity. (**53** #3183)

**Gould, F. J.** (*with* Tolle, Jon W.) An existence theorem for solutions to $f(x)=0$. (**56** #7157)

**Gwinner, Joachim** Generalized Stirling-Newton methods. (**56** #13590)

**Hajj, Ibrahim N.** *See* **Kuh, Ernest S.**, (**56** #11589)

**Hale, Jack K.** *See* **Chow, Shui Nee; et al.**, (**52** #11675)

**Hayashi, Mikihiro** Implicit function theorem for Banach algebras. (**53** #3709)

**Hiriart-Urruty, Jean-Baptiste** Gradients généralisés de fonctions composées. Applications. (English summary) (**56** #16489)

**Hörmander, L.** The boundary problems of physical geodesy. (**58** #29202a)
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**Jacobowitz, Howard** Implicit function theorems and isometric embeddings. (**46** #6248)
Extending isometric embeddings. (**51** #13942)

**Jones, Dixon D.** The application of catastrophe theory to ecological systems. (**58** #26166)

**Kolomý, Josef** Some properties of nonlinear operators. II. (**58** #18021)

**Krugljak, N. Ja.** Imbedding theorems, interpolation of operators, and the Nash-Moser implicit function theorem. (Russian) (**53** #3729)

**Kuh, Ernest S.** (*with* Hajj, Ibrahim N.) Nonlinear circuit theory: resistive networks. (**56** #11589)

**Lassalle, Guy** Déploiement universel d'une application de codimension finie. (**51** #6869)

**Lin'kov, E. I.** Some modifications of the Newton-Kantorovič method. (Russian) (See RŽMat **1974** #2 B1012)

**Magaril-Il'jaev, G. G.** The implicit function theorem for Lipschitzian mappings. (Russian) (**58** #11277)

**Mallet-Paret, John** *See* **Chow, Shui Nee; et al.**, (**52** #11675)

**Nagakura, Yasujirô** Differential calculus in linear ranked spaces. (**58** #13128)

**Poznjak, È. G.** (*with* Sokolov, D. D.) Isometric immersions of Riemannian spaces in Euclidean spaces. (Russian) (**58** #2656)

**Pták, Vlastimil** Nondiscrete mathematical induction. (**58** #7237)

**Schaeffer, David G.** A stability theorem for the obstacle problem. (**52** #994)
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**Sokolov, D. D.** *See* **Poznjak, È. G.**, (**58** #2656)

**Tanabe, Kunio** An algorithm for the constrained maximization in nonlinear programming. (**57** #15467)

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**Wacker, Hansjörg** Minimierung des Rechenaufwandes bei Globalisierungen spezieller Iterationsverfahren vom Typ Minimales Residuum. (English summary) (**56** #13606)

**Wildenauer, Peter** Erzeugung globaler Konvergenz bei regulären Zerlegungen von nichtlinearen Abbildungen. (English and Russian summaries) (**58** #8225)

**Zehnder, Edward J.** A remark about Newton's method. (**51** #7282)
Generalized implicit function theorems with applications to some small divisor problems. II. (**54** #14001)

## 58C20 Differentiation theory (Gâteaux, Fréchet, etc.)

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**Balabanov, V. A.** Lipschitz structure and differentiation operations in topological vector spaces. (Russian. Georgian summary) **55** #4253

**Barit, W.** (*with* Wood, G. R.) Differentiable retracts and a modified inverse funct theorem. **57** #17692

**Benenti, Sergio** Separable dynamical systems: characterization of separability structu on Riemannian manifolds. **58** #13126

**Bruter, Claude Paul** Nombre des morphologies d'une courbe du plan réel sans po d'inflexion. (English summary) **55** #1379

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**Minea, Gheorghe** Remarque sur les équations d'Euler dans un domaine possédant une symétrie de révolution. (English summary) (**55** #901)

**Moncrief, Vincent** Space-time symmetries and linearization stability of the Einstein equations. II. (**54** #4541)
Gauge symmetries of Yang-Mills fields. (**56** #10615)

**Ó Murchadha, Niall** Positivity of energy and stationary solutions in general relativity. (**57** #8918)
*See also* **Cantor, Murray; et al.**, (**54** #4553)

**Ouzilou, René** Groupes classiques de Banach. (**45** #1203)

**Plante, Joseph F.** (*with* Thurston, William P.) Polynomial growth in holonomy groups of foliations. (**55** #9117)

**Praet, G.** *See* **Kerbrat, Yvan; et al.**, (**57** #10661)

**Sachs, Rainer Kurt** *See* **Budic, Robert**, (**56** #4648)

**Satô, Hiroshi** On Lie group structure of subgroups of O($S$). (**56** #5803)

**Sergeraert, Francis** Un théorème de fonctions implicites sur certains espaces de Fréchet et quelques applications. (**54** #6182)

**Sharpe, Richard** *See* **Hsiang, Wu Chung**, (**58** #13091)

**Skorik, A. I.** *See* **Zaĭdenberg, M. G.**, (**55** #6240)

**Smarr, Larry** (*with* York, James W., Jr.) Kinematical conditions in the construction of spacetime. (**58** #20240)

**Szczyrba, Wiktor** On the geometric structure of the set of solutions of Einstein equations. (**58** #31206)

**Temam, Roger** Local existence of $C^\infty$ solutions of the Euler equations of incompressible perfect fluids. (**57** #6902)

**Thurston, William P.** *See* **Plante, Joseph F.**, (**55** #9117)

**Ushiki, Shigehiro** *See* **Fukui, Kazuhiko**, (**55** #4202)

**Veršik, A. M.** (*with* Gel'fand, I. M.; Graev, M. I.) Representations of the group of diffeomorphisms. (Russian) (**53** #3188)
(*with* Gel'fand, I. M.; Graev, M. I.) Representations of the group of smooth mappings of a manifold $X$ into a compact Lie group. (Russian) (**55** #10602)

**Vigué, Jean-Pierre** Sur le groupe des automorphismes analytiques d'un domaine borné d'un espace de Banach complexe. (English summary) (**54** #7873)

**Wagoner, John B.** Algebraic invariants for pseudo-isotopies. (**50** #1266)

**Wallet, Guy** Nullité de l'invariant de Godbillon-Vey d'un tore. (English summary) (**54** #11353)

**Willgerodt, Wolfgang** *See* **Brüning, Jochen**, (**53** #9276)

**York, James W., Jr.** *See* **Cantor, Murray; et al.**, (**54** #4553) *and* **Smarr, Larry**, (**58** #20240)

**Zaĭdenberg, M. G.** (*with* Skorik, A. I.) Groups of isometries that contain reflections. (Russian) (**55** #6240)

## 58D10 Spaces of imbeddings and immersions

**Èliašberg, Ja. M.** *See* **Gromov, M. L.**, **52** #9281

**Gramain, André** Sur le groupe fundamental de l'espace des noeuds. (English summary) **57** #1552

**Gromov, M. L.** A topological technique for the construction of solutions of differential equations and inequalities. **54** #8709
(*with* Èliašberg, Ja. M.) Construction of nonsingular isoperimetric films. (Russian) **52** #9281

**Halpern, Benjamin** (*with* Weaver, Charles S.) Inverting a cylinder through isometric immersions and isometric embeddings. **57** #14030

**Hansen, Vagn Lundsgaard** On the homotopy type of certain spaces of differentiable maps. **48** #1261
On the space of maps of a closed surface into the 2-sphere. **52** #6778

**Krygin, A. B.** Extension of diffeomorphisms that preserve volume. (Russian) **51** #4309

**Paul, Jerome L.** Addendum to: "Sequences of homeomorphisms which converge to homeomorphisms" (Pacific J. Math. **24** (1968), 143–152). **49** #8054

**Shin, Yong Tae** Openness theorems on $C^r$ immersions and embeddings of some Hilbert manifolds. (Korean summary) **48** #9755

**Weaver, Charles S.** *See* **Halpern, Benjamin**, **57** #14030

Secondary classifications:

**Acquistapace, Francesca** (*with* Broglia, Fabrizio; Tognoli, Alberto) A relative embedding theorem for Stein spaces. (**53** #870)

**Asperti, Antonio Carlos** Some generic properties of Riemannian immersions. (**58** #2653)

**(Bakel'man, I. Ja.)** *See* **Nash, John F.**, (**58** #13123)

**Beig, R.** Radiation (damping) in a universe with topologically closed space sections. (**58** #4186)

**Brakes, W. R.** Canonical extensions for embeddings of topological spheres of any codimension. (**56** #6664)

**Broglia, Fabrizio** *See* **Acquistapace, Francesca; et al.**, (**53** #870)

**Budic, Robert** (*with* Isenberg, James A.; Lindblom, Lee; Yasskin, Philip B.) On determination of Cauchy surfaces from intrinsic properties. (**58** #9089)

**Burghelea, Dan** (*with* Lashof, Richard; Rothenberg, Melvin) ★Groups of automorphisms of manifolds. (**52** #1738)
(*with* Lashof, Richard) Stability of concordances and the suspension homomorphism. (**55** #11280)

**Burlet, Oscar** Propos au sujet des applications différentiables. (**56** #13256)

**Černavskiĭ, A. V.** Espace de plongements. (**55** #6435)

**Dax, Jean-Pierre** Étude homotopique des espaces de plongements. (**47** #9643)

**Èliašberg, Ja. M.** *See* **Mišačev, N. M.**, (**57** #13972)

**Fathi, Albert** (*with* Visetti, Yves-Marie) Deformation of open embeddings of $Q$-manifolds. (**54** #8680)

**Gauld, David B.** Canonical extensions of embeddings in Euclidean space. (**58** #18471)

**Hamstrom, Mary-Elizabeth** Homotopy in homeomorphism spaces, TOP and PL. (**48** #12581)

**Isenberg, James A.** *See* **Budic, Robert; et al.**, (**58** #9089)

**Ivanov, N. V.** Groups of diffeomorphisms of Waldhausen manifolds. (Russian. English summary) (**56** #6677)

**Lashof, Richard** Embedding spaces. (**52** #9239)
*See also* **Burghelea, Dan; et al.**, (**52** #1738) *and* **Burghelea, Dan**, (**55** #11280)

**Lindblom, Lee** *See* **Budic, Robert; et al.**, (**58** #9089)

**Miller, Richard T.** Fiber preserving equivalence. (**52** #9240)

**Mišačev, N. M.** (*with* Èliašberg, Ja. M.) Surgery of singularities of foliations. (Russian) (**57** #13972)

**Nash, John F.** The imbedding problem for Riemannian manifolds. (Russian) (**58** #13123)

**(Pedersen, E.)** *See* **Burghelea, Dan; et al.**, (**52** #1738)

**Perron, Bernard** Familles à un paramètre de pseudo-isotopies de plongements en codimension deux. (**55** #1369)

**Robinson, Helen D.** Continuous and differentiable embeddings in the metastable range. (**50** #14796)

**Rothenberg, Melvin** *See* **Burghelea, Dan; et al.**, (**52** #1738)

**(Sapožnikov, B. D.)** *See* **Nash, John F.**, (**58** #13123)

**Szűcs, A.** Cobordism groups of $l$-immersions. I. (A) Homotopy representability of the cobordism group of immersions with a given multiplicity of self-intersections. (Russian) (**55** #13431)
Cobordism groups of $l$-immersions. II. (Russian) (**55** #13432)

**Tanaka, Noboru** Rigidity for elliptic isometric imbeddings. (**48** #7173)

**Tognoli, Alberto** *See* **Acquistapace, Francesca; et al.**, (**53** #870)

**Tromba, Anthony J.** On the number of simply connected minimal surfaces spanning a curve. (**58** #31197)

**Vaisman, Izu** Remarks about differential operators on foliate manifolds. (Romanian summary) (**56** #16651)

**Visetti, Yves-Marie** *See* **Fathi, Albert**, (**54** #8680)

**Wall, C. T. C.** Geometric topology: manifolds and structures. (**54** #11342)

**Weiner, Joel L.** On a problem of Chen, Willmore, et al. (**57** #7466)

**Willmore, T. J.** Mean curvature of immersed manifolds. (**54** #1138)

**Yasskin, Philip B.** *See* **Budic, Robert; et al.**, (**58** #9089)

## 58D15 Manifolds of mappings [See also 54C35.]

**Aubin, Thierry** Espaces de Sobolev sur les variétés riemanniennes. **58** #7692
Problèmes isopérimétriques et espaces de Sobolev. **56** #6711

**Bancel, Daniel** (*with* Lacaze, Jacques) Spaces of functions with asymptotic conditions and existence of non compact maximal submanifolds of a Lorentzian manifold. **58** #24335
(*with* Lacaze, Jacques) Espaces de fonctions avec conditions asymptotiques et sections d'espace maximales non compactes. (English summary) **54** #11385

**Baxendale, Peter** Gaussian measures on function spaces. **57** #7660
Markov processes on manifolds of maps. **53** #11657

**Bebbouchi, Rachid** Topologie $C$. **55** #9155

**Berezovskiĭ, A. L.** The structure of certain path spaces on a symplectic group. (Russian) **57** #10729

**Berquier, Françoise** Variétés d'applications différentiables. **54** #13983

**Bessaga, Czesław** (*with* Pełczyński, A.) On spaces of measurable functions. **51** #4310

**Bourguignon, Jean-Pierre** Une stratification de l'espace des structures riemanniennes. **54** #6189

**Chevallier, Dominique** Propriétés géométriques des solutions d'un problème de Cauchy dans un fibré vectoriel. (English summary) **54** #3748
Champs de Jacobi et variétés de solutions d'une équation différentielle dans une variété de Banach. (English summary) **54** #3749

**Dombrowski, Peter** Differentiable maps into Riemannian manifolds of constant stable osculating rank. I. **51** #14145

**Ebin, David G.** ★Espace des métriques riemanniennes et mouvement des fluides via les variétés d'applications. **57** #4231

**Eells, James, Jr.** Fibring spaces of maps. **55** #4264

**Èpšteĭn, S. I.** Fundamental groups of the spaces of sets of relatively prime polynomials. (Russian) **49** #9865

**Faddeev, L. D.** *See* **Reĭman, A. G., 54** #6190
**Fischer, Arthur Elliot** (*with* Marsden, Jerrold Eldon) Manifolds of Riemannian metrics with prescribed scalar curvature. **49** #11561
**Foster, M. J.** Calculus on vector bundles. **51** #11577
**Frampton, J.** (*with* Tromba, Anthony J.) On the classification of spaces of Hölder continuous functions. **53** #4132
**Geoghegan, Ross** (*with* Henderson, David W.) Stable function spaces. **49** #4029
**Glaeser, Georges** Géométrie des distributions à support fini. **54** #8710
**Hamilton, Richard S.** Regularity theorems for partial differential operators. **54** #3750
**Hansen, Vagn Lundsgaard** On mapping spaces with infinite dimensional target. **49** #11562
  The homotopy problem for the components in the space of maps on the $n$-sphere. **50** #14838
**Henderson, David W.** *See* **Geoghegan, Ross, 49** #4029
**(Hovanskiĭ, A. G.)** *See* **Thom, René, 52** #6781
**Hubbard, John Hamal** On the cohomology of Nash sheaves. **45** #4446
**Krikorian, Nishan** Differentiable structures on function spaces. **47** #1082
**Lacaze, Jacques** *See* **Bancel, Daniel, 54** #11385 *and* **Bancel, Daniel, 58** #24335
**Lascar, Bernard** Invariance par difféomorphisme d'espace de Sobolev. Espace de Sobolev d'une variété. Applications. **58** #31187
**Lazutkin, V. F.** Examples of diffeomorphisms of the circle. (Russian. English summary) **58** #2865
**Li, Yü Li** (*with* Miu, Lung Chi) Norms on spaces of $C^r$-sections. **49** #11563
**Lukes, Dahlard L.** The geometry of differential equations on Banach space. **54** #8711
**Makarov, A. A.** The ring of convolutors in a function space. (Russian) **56** #3878
**Marsden, Jerrold Eldon** A proof of the Calderon extension theorem. **48** #3076
  *See also* **Fischer, Arthur Elliot, 49** #11561
**Milman, Pierre D.** On the nonexistence of a projection from functions of $x$ to functions of $x^n$. **55** #13474
**Mitteau, Jean-Claude** Existence des applications harmoniques. **50** #11313
**Miu, Lung Chi** *See* **Li, Yü Li, 49** #11563
**Nachbin, Leopoldo** Sur quelques aspects récents de l'holomorphie en dimension infinie. **52** #15549
**Ogata, Shigeo** Maps on vector bundle $L_s^k(\gamma, \xi)$. **49** #9866
**Palais, Richard S.** Banach manifolds of fiber bundle sections. **56** #6712
**Pełczyński, A.** *See* **Bessaga, Czesław, 51** #4310
**Penot, Jean-Paul** Topologie faible sur des variétés de Banach. **46** #914
  Weak topology on functional manifolds. **55** #13475
  Topologie faible sur des variétés de Banach. Application aux géodésiques des variétés de Sobolev. **57** #10730
**Prolla, João Bosco** On polynomial algebras of continuously differentiable functions. (Italian summary) **54** #11386
**Reĭman, A. G.** (*with* Faddeev, L. D.) A certain class of infinite-dimensional dynamical systems. (Russian. English summary) **54** #6190
**Sullivan, Dennis** (*with* Vigué-Poirrier, Micheline) Sur l'existence d'une infinité de géodésiques périodiques sur une variété riemannienne compacte. (English summary) **53** #4133
**Thom, René** The bifurcation subset of a space of maps. (Russian) **52** #6781
**Tromba, Anthony J.** On the isometries of spaces of Hölder continuous functions. **54** #8712
  *See also* **Frampton, J., 53** #4132
**Uhlenbeck, Karen** Regularity theorems for solutions of elliptic polynomial equations. **54** #1288
  Bounded sets and Finsler structures for manifolds of maps. **48** #12592
**Ver Eecke, Paul** Sur le théorème de Frobenius. **51** #14147
  Sur le calcul différentiel dans les espaces vectoriels topologiques. **51** #14146
**Vigué-Poirrier, Micheline** *See* **Sullivan, Dennis, 53** #4133

Secondary classifications:

**Aubin, Thierry** Équations différentielles non linéaires. **(55** #4293**)**
**Baxendale, Peter** Measures and Markov processes on function spaces. **(55** #12894**)**
**Borisovič, Ju. G.** (*with* Sapronov, Ju. I.) Certain topological invariants of nonlinear Fredholm mappings. (Russian) **(53** #6612**)**
**Brockett, Roger W.** Some geometric questions in the theory of linear systems. **(57** #9177a**)**
  Some geometric questions in the theory of linear systems. **(57** #9177b**)**
**Chenais, Denise** Sur une famille de variétés à bord lipschitziennes. Application à un problème d'identification de domaines. (English summary) **(57** #13463**)**
**Cherrier, Pascal** Sur la fonction exponentielle. (English summary) **(54** #11388**)**
**Chichilnisky, Graciela** Nonlinear functional analysis and optimal economic growth. **(57** #5004**)**
**Chu, C. I.** *See* **Miu, Lung Chi; et al., (52** #1766**)**
**DeWitt-Morette, Cecile** Towards quantum gravity. **(56** #3880**)**
**Earle, Clifford J.** On the moduli of closed Riemann surfaces with symmetries. **(45** #5343**)**
**Ehrlich, Paul Ewing** Continuity properties of the injectivity radius function. **(54** #6022**)**
  Conformal deformations and extremal paths in the space of Riemannian metrics. **(54** #8715**)**
**Foiaş, C.** (*with* Temam, Roger) A generic property of the set of stationary solutions of Naviĕr Stokes equations. **(56** #6151**)**
**Geoghegan, Ross** Hilbert cube manifolds of maps. **(55** #4184**)**
**Goldstein, Ronald A.** Stability of the boundary-value problem for harmonic mappings. **(46** #9895**)**
**Gorlenko, S. V.** Differential properties of functions, and multi-valued mappings. (Russian. English summary) **(54** #1160**)**
**Graff, Richard A.** Differential calculus in locally convex spaces. **(55** #9146**)**
**Hahn, Siegfried** Eine Bemerkung zur Theorie verdichtender Abbildungen. **(58** #12542**)**
**Hamilton, Richard S.** ★Harmonic maps of manifolds with boundary. **(58** #2872**)**
**Harvey, William** On branch loci in Teichmüller space. **(45** #7046**)**
**Ha Zuĭ Hoaĭ** *See* **Nguyẽn-van-khuê, (48** #3072**)**
**Hendriks, Harrie** La stratification naturelle de l'espace des fonctions différentiable réelles n'est pas la bonne. **(46** #6396**)**
**Hŏ, Ŭn Dok** Some topological properties of spaces of $k$-continuous functions. (Korean English summary) **(58** #30096**)**
**Holmes, Richard B.** On the continuity of best approximation operators. **(53** #8757**)**
**Hughes, Thomas J. R.** (*with* Kato, Tosio; Marsden, Jerrold Eldon) Well-posed quasi-linear second-order hyperbolic systems with applications to nonlinear elastodynamics and general relativity. **(54** #8041**)**
**Kato, Tosio** *See* **Hughes, Thomas J. R.; et al., (54** #8041**)**
**Koschorke, Ulrich** Pseudo-compact subsets of infinite-dimensional manifolds. **(46** #2679**)**
**Krée, Mirella** Propriété de trace en dimension infinie d'espaces du type Sobolev. **(57** #10419**)**
**Kuo, Hui Hsiung** On Gross differentiation on Banach spaces. **(54** #5424**)**
**Ladyženskaja, O. A.** (*with* Solonnikov, V. A.) Some problems of vector analysis, and generalized formulations of boundary value problems for the Navier-Stokes equation. (Russian. English summary) **(57** #6900**)**
**Langenbach, Arno** Analytic branching in the theory of v. Kármán plates. **(56** #9112**)**
**Lemoine, Carlos** Fourier transforms of homogeneous distribution. **(53** #8889**)**
**Li, Yü Li** *See* **Miu, Lung Chi; et al., (52** #1766**)**
**Marsden, Jerrold Eldon** *See* **Hughes, Thomas J. R.; et al., (54** #8041**)**
**Maslov, V. P.** A generalization of the concept of characteristics for $A$-pseudodifferential operators with operator-valued symbol. (Russian) **(55** #8598**)**
**Mitteau, Jean-Claude** Applications harmoniques stables. **(54** #11387**)**
**Miu, Lung Chi** (*with* Chu, C. I.; Li, Yü Li) Differential structure on differentiable maps. **(52** #1766**)**
**Németh, A. B.** The homotopical characterization of the set of unrestricted Chebyshev spaces. **(49** #7975**)**
**Nguyẽn-van-khuê** (*with* Ha Zuĭ Hoaĭ) Holomorphic mappings on Banach manifolds. (Russian) **(48** #3072**)**
**Ouzilou, René** Structures symplectiques faibles et intégrabilité globale de certains systèmes hamiltoniens. **(55** #4279**)**
**Phan Văn Chu'o'ng** On an approximation theorem for set-valued mappings. **(55** #3213**)**
**Piech, M. Ann** Smooth functions on Banach spaces. **(56** #16668**)**
**Poénaru, Valentin** Un théorème des fonctions implicites pour les espaces d'applications $C^\infty$. **(57** #14017**)**
**Raţiu, Tudor S.** Bifurcations, semiflows, and Navier-Stokes equations. **(57** #3668**)**
**Sapronov, Ju. I.** *See* **Borisovič, Ju. G., (53** #6612**)**
**Smoljanov, O. G.** Certain complete spaces of smooth mappings of pseudotopological linear spaces. (Russian) **(54** #8700**)**
**Solonnikov, V. A.** *See* **Ladyženskaja, O. A., (57** #6900**)**
**Sunderesan, K.** Differential categories of locally convex spaces. **(55** #9147**)**
**Temam, Roger** *See* **Foiaş, C., (56** #6151**)**
**Toruńczyk, Henryk** Absolute retracts as factors of normed linear spaces. **(51** #1723**)**
**Walczak, Paweł** On restriction of differential structures coinduced by a mapping. (Russian summary) **(48** #5113**)**
**Wehrli, Martin** Axiomatische Differentialrechnung. **(55** #4256**)**
**Yamamoto, Noboru** $l^p$-spaces over Banach spaces and an application. **(50** #14270**)**

### 58D99 None of the above, but in this section

**Babin, A. V.** Finite-dimensionality of the kernel and the cokernel of quasilinear elliptic mappings. (Russian) **51** #9118
**Bejancu, Aurel** Structure theorems for a Banach Lie loop. **56** #1348
**Buchner, Michael A.** Stability of the cut locus in dimensions less than or equal to 6. **58** #2866
**Cantor, Murray** Sobolev inequalities for Riemannian bundles. **51** #9119
  Sobolev inequalities for Riemannian bundles. **52** #1770
**Cerf, Jean** La stratification naturelle des espaces de fonctions différentiables réelles et le théorème de la pseudo-isotopie. **45** #1176
**Chernoff, Paul R.** A note on continuity of semigroups of maps. **56** #6713
**Gawędzki, K.** Geometric quantization and Feynman path integrals for spin. **56** #9572
**Mayer, Meinhard E.** Differentiable cross sections in Banach-$*$-algebraic bundles. **58** #31188

Secondary classifications:

**Alimov, A. L.** A representation of the solution of a boundary value problem as a path integral. (Russian) **(58** #29101**)**
**Arsen'ev, A. A.** The existence of invariant measures on the space of solutions of an evolution equation. (Russian) **(58** #30241**)**
**Berezin, F. A.** Non-Wiener path integrals. (Russian. English summary) **(57** #18605**)**
**Berezovskiĭ, A. L.** The lattice of spaces of positive paths on a symplectic group. (Russian) **(58** #7669**)**
**Borisov, A. B.** The unitary representations of the general covariant group algebra. **(58** #11247**)**
**Cantoni, Vittorio** The Riemannian structure on the states of quantum-like systems. **(57** #11396**)**
**Cassidy, Charles** Sur les sections distributions des fibrés vectoriels. **(48** #2754**)**
**Čebotarev, A. M.** *See* **Maslov, V. P., (58** #20051**)**
**Cesari, Lamberto** Alternative methods in nonlinear analysis. **(55** #3889**)**
**Chotteau, Bernard** Variété fibrée principale des configurations locales et propriétés des corps simples. **(47** #6180**)**
**Curtis, W. D.** (*with* Miller, Forrest R.) Gauge groups and classification of bundles with simple structural group. **(58** #2813**)**
**Da Prato, Giuseppe** (*with* Iannelli, Mimmo; Tubaro, Luciano) Stochastic differential equations in Banach spaces, variational formulation. (Italian summary) **(58** #3042**)**
**DeWitt-Morette, Cecile** Path integrals in Riemannian manifolds. **(58** #32618**)**
  (*with* Maheshwari, Amar; Nelson, Bruce) Path integration in phase space. **(58** #19944**)**

**Edelstein, Michael** On some aspects of fixed point theory in Banach spaces. (**53** #6368)

**Faddeev, L. D.** The Feynman integral for singular Lagrangians. (Russian. English summary) (**57** #4922)

**Fathi, Albert** (*with* Visetti, Yves-Marie) Structure du groupe des homéomorphismes préservant une mesure sur une variété compacte. (English summary) (**55** #6453)

**Fegan, Howard D.** (*with* Millman, Richard S.) Quadrants of Riemannian metrics. (**58** #7483)

**Fukuda, Takuo** Deformations of real analytic functions and the natural stratification of the space of real analytic functions. (**54** #10650)

**Gel′fand, I. M.** (*with* Graev, M. I.; Veršik, A. M.) Representations of the group of smooth mappings of a manifold $X$ into a compact Lie group. (**58** #28257)

**Glimm, James** Analysis over infinite dimensional spaces and applications to quantum field theory. (**58** #32619)

**Graev, M. I.** *See* **Gel′fand, I. M.; et al.**, (**58** #28257)

**Hahn, Siegfried** Ein Homotopieerweiterungssatz für kompakte Vektorfelder in topologischen Vektorräumen. (**55** #6256)

**Halpern, Benjamin** Homeomorphisms with many recurrent points. (**54** #3758)

**de la Harpe, Pierre** On infinite-dimensional Lie groups acting on finite-dimensional manifolds. (**55** #8263)
Some properties of infinite-dimensional orthogonal groups. (**56** #9284)
*See also* **Omori, Hideki**, (**48** #7308)

**Hughes, Thomas J. R.** (*with* Marsden, Jerrold Eldon) Some applications of geometry in continuum mechanics. (**58** #8698)

**Iannelli, Mimmo** *See* **Da Prato, Giuseppe; et al.**, (**58** #3042)

**Janda, Jaroslav** Über die Kategorie der Menge stetiger Funktionen, welche Differentialgleichungen ohne Eindeutigkeit bestimmen. (**47** #3727 (EA **58**) )

**Karasev, M. V.** The path integral, and quasiclassical asymptotic analysis on a Lie group. (Russian. English summary) (**57** #4863)

**Kerler, W.** Definition of path integrals and rules for non-linear transformations. (**58** #4030)

**Kostrikin, I. A.** Regular classes of conjugate elements of certain groups of flows. (Russian) (**53** #6639)

**Kulikov, A. N.** Smooth invariant manifolds of a semigroup of nonlinear operators in a Banach space. (Russian) (**58** #23842)

**Lee, L. L.** Erratum: "Continuum calculus and Feynman's path integrals" (J. Mathematical Phys. **17** (1976), no. 11, 1988–1997). (**57** #18647)

**Lemaire, Luc** Applications harmoniques de surfaces. (English summary) (**51** #9123)

**Lubkin, Elihu** Is gravitational dual charge physical? (**58** #20261)

**Maheshwari, Amar** *See* **DeWitt-Morette, Cecile; et al.**, (**58** #19944)

**Marsden, Jerrold Eldon** *See* **Hughes, Thomas J. R.**, (**58** #8698)

**Maslov, V. P.** On the stationary phase method for Feynman's path integral. (Russian. English summary) (**57** #18645)
(*with* Čebotarev, A. M.) Jump processes and their application in quantum mechanics. (Russian) (**58** #20051)

**Miller, Forrest R.** *See* **Curtis, W. D.**, (**58** #2813)

**Millman, Richard S.** *See* **Fegan, Howard D.**, (**58** #7483)

**Moreno, Carlos** Spaces of positive and negative frequency solutions of field equations in curved space-times. I. The Klein-Gordon equation in stationary space-times. (**57** #18742a)
Spaces of positive and negative frequency solutions of field equations in curved space-times. II. The massive vector field equations in static space-times. (**57** #18742b)

**Morse, Marston** Fréchet curve classes. (**51** #1874)

**Ne'eman, Y.** (*with* Sherry, T. N.) Graded spin-extension of the algebra of volume-preserving deformations. (**58** #14512)

**Nelson, Bruce** *See* **DeWitt-Morette, Cecile; et al.**, (**58** #19944)

**Nussbaum, Roger D.** A bifurcation theorem with applications to some autonomous functional differential equations. (**55** #3892)

**Omori, Hideki** (*with* de la Harpe, Pierre) Opération de groupes de Lie banachiques sur les variétés différentielles de dimension finie. (**48** #7308)

**Penna, Michael A.** Vector fields on polyhedra. (**56** #9545)

**Pérez-Rendón, Antonio** Yang-Mills interactions; a problem not depending on the gauge invariance. (**58** #14735)

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**Rebhuhn, Deborah** On genericity and complements of measure zero sets in function spaces. (**58** #988)

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**Berger, Melvyn S.** ★Nonlinearity and functional analysis. (**58** #7671)

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**Ambrosetti, Antonio** Teoria di Lusternik-Schnirelman su varietà con bordo negli spazi di Hilbert. **52** #9282
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**Fučík, Svatopluk** (*with* Kučera, Milan; Nečas, Jindřich; Souček, Jiří; Souček, Vladimír) Morse-Sard theorem in infinite dimensional Banach spaces and investigation of the set of all critical levels. **51** #6875

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**Antosiewicz, H. A.** A new view on constrained problems. (**58** #30544)

**Arnol'd, V. I.** Wave front evolution and equivariant Morse lemma. (**55** #9148 (E **57** #7648) )

**Bahtin, I. A.** On the problem of the rotation of a vector field. (Russian) (**58** #2473)

**Ball, John M.** On the asymptotic behavior of generalized processes, with applications to nonlinear evolution equations.ations. (**57** #1561)

**Benjamin, T. Brooke** The alliance of practical and analytical insights into the nonlinear problems of fluid mechanics. (**58** #32375)

**Bérard, Pierre H.** On the wave equation on a compact Riemannian manifold without conjugate points. (**56** #13295)

**Berger, Melvyn S.** Autonomous perturbations of some Hamiltonian systems, all of whose solutions are periodic. (**54** #5541)

Minimax principles for the solution of semilinear gradient operator equations in Hilbert space. (**47** #9379)

**Bobylev, N. A.** (*with* Krasnosel'skiĭ, M. A.) The bifurcation of solutions of nonlinear equations from a continuum of fixed points. (Russian) (**58** #7248)

**Böhme, Reinhold** (*with* Tomi, Friedrich) Zur Struktur der Lösungsmenge des Plateauproblems. (**49** #11362)

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**Borisovič, Ju. G.** (*with* Zvjagin, V. G.) A topological principle of solvability for equations with Fredholm operators. (Russian. English summary) (**57** #17688)

**Botašev, A. I.** ★Конечные методы в теории многомерного ветвления. (Russian) [Finite methods in the theory of multidimensional bifurcation] (**58** #31189)

**Burýšek, Slavomír** Some remarks on branching theory. (**57** #17408)

**Casas, Carmen** On a theorem of R. Palais, and the projection methods $PF\{P_n\}$. (Spanish) (**57** #10458)

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**Cesari, Lamberto** ★Nonlinear analysis and alternative methods. (**58** #30549)

**Citlanadze, K. È.** Finding the potential of a functional in a Banach space. (Russian. Georgian and English summaries) (**53** #8891)

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**Daniljuk, Ī. Ī.** ★Об интегральных функционалах с переменной областью интегрирования. (Russian) [Integral functionals with variable domain of integration] (**48** #7055)

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**Fife, P. C.** Branching phenomena in fluid dynamics and chemical reaction-diffusion theory. (**57** #18474)

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